

THE
Reformed-School:
AND THE
REFORMED
LIBRARIE-KEEPER.

BY
JOHN DURIE.

Whereunto is added

- I. An Idea of *Mathematicks*.
 - II. The description of one of the chiefest Libraries which is in *Germanie*, erected and ordered by one of the most Learned Princes in *Europe*.
-

L O N D O N,
Printed by *William Du-Gard*, and are
to bee sold by *Rob. Littleberrie* at the
sign of the *Unicorn* in Little
Britain. 1651.

James Birdley,
M.A. F.S.A.
Stamp-Office
London.
4766.

Congregational Library
Memorial Hall, London.

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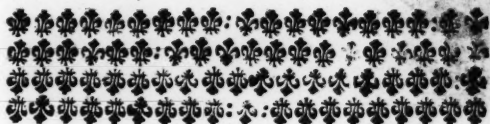
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The Publisher to the Reader.

Christian Reader,

NOthing from without hath supported my spirit in the course of life, wherein God hath led me hitherto (*through manifold private difficulties and publick desertions,*) but the usefulness thereof towards the Publick. & whiles the graciousness of Providence hath from time to time succoured me, chiefly then when I was sinking under my burdens; I have been taught from within, to look up to God alone in well-doing, till he bring his Salvation out of *Sion*: for, to propagate this Salvation of his with my poor talents, and to stirre up others to contribute their help thereunto, is the utmost aim

which I have in the Agency for Learning; wherein the goodnes of the Parliament hath owned me. And although, towards the businesse it self, nothing hath been further done then to name me for it; (*which for the time hath made my burdens somewhat heavier*) yet because my genius doth leade me this way; and I hope still in God that he will not leave me without encouragements: therefore I am not weary in well-doing, so long as I have opportunity. Having then, upon a motion made by some, made my self Instrumentall to draw forth from others these following Directions, towards the Reforming of Schools, and the Advancement of Piety and Learning therein; I thought it expedient to acquaint thee with them, Christian Reader; that if thou doest think thy self any way concerned, either in furthering the benefits of such a way of Education towards others; or in partaking thereof

thereof for thine own, thou mayest be-
think thy self how to do that which is
fitting and conscionable; that such an
Endeavour as this may be set forward
towards the Publick Good. For mine
own part, I shall confesse freely, that
amongst all the Objects whereunto I
have dedicated my thoughts and pains
(whereof the extent is as large as eve-
ry Good and Rationall Work in the
whole life of Christianity) there is not
any one which doth lie nearer my heart
then this of the Education of Children
in the way of Christianity. For, all
things being rightly weighed, we shall
perceive that this Endeavour alone, or
nothing, will be able to work a Refor-
mation in this our Age. For whiles
the Magistracy and Ministry is made
an Object of violent Contradictions,
and thereby almost wholly put out of
frame and made uselesse, as to the
Reforming of Vices in Church and
Commonwealth; it cannot be expect-

ed, although they be never so knowing and willing, that in the execution of their places, they should be able to bring matters to perfection. Therefore, to meddle directly with the multitudes of Aged people (the Objects of their charges) who are now settled and habituated in the way of their own choosing, and to think to draw them from it, is to attempt, *without discretion*, an impossibilitie. For it is not possible, that the extraordinary strains and distempers, whereinto we are fallen in these times, can be reformed without some extraordinary abilitie, either of outward Authority and Power to restrain exemplary disorderliness; or of inward Conviction, to leade men captive under the yoke of Christ, which are things wholly decayed, now adayes, amongst the professions of men. Seeing then, the corruptions of those that are of age, are too strong and sturdy to be conquered by

by ordinary and weak means, and none extraordinary or strong enough, are apparent ; it followeth, that there is none other way left, but to deal with the young ones, before any corrupt habits, and perverse engagements be confirmed upon them; that they may be trained up from their Infancy, to a course of Reformation, both of Virtue and Learning. But because the training up of Schollars in one School or two, though very great and most exactly Reformed, will be but an inconsiderable matter, in respect of a whole Nation, and have no great influence upon the youth thereof, where so many Schools remain unreformed, & propagate corruptions ; therefore the propagation of reformed Schools is mainly aimed at ; and to that effect, the training up of Reformed School-Masters, is one of the Chief parts of this Designe. Now to endeavour to make out this, that the readiest way to Re-

form both Church and Common-wealth, is to reform the Schools of Education therein; and that the way to Reform these, is to send forth Reformed School-Masters amongst them, is, as I suppose, altogether superfluous: For it cannot be thought, that any rationall man should be such a stranger unto the affairs of humane Societies, as not to see, that from the ordinary Schools, all Magistrates, and Ministers, and Officers of State are taken throughout the Nations of the World, to be set over others; and that the impressions both of vice and virtue, which they have received in the Schools, are exercised, and become effectually, for good or evil, afterward, in their places towards the Church and Common-wealth: so that the Schools are to be looked upon, as the Ordinary and Naturall fountains of a Settlement, as of our Corruption, so of our Reformation; if God will blesse us
with

with any. And the School-Master in a well ordered Common-wealth, is no lesse considerable then either the Minister or the Magistrate ; because neither the one nor the other will prosper or subsist long without him. I shall not need to adde any thing further concerning this subject, to make thee sensible, either of the Usefulnessse of the undertaking, or of the Scope of my negotiation in it.

This onely I would have thee further to observe, judicious and truly Christian Reader (for none but such can see any thing in this businesse) that the Authour of this new Model of schooling was intreated to put it to paper, upon a serious motion made to him, and to some Friends of his, by others; for the entertaining and regulating of a Christian Association. whereof all the Members might be serviceable to each other, and to the Publick: therefore he speaks not in his own name alone con

cerning the Association, but in the name of those, who were jointly called upon to give their assent thereunto, who agreed with him in these Proposals. The Motion is not as yet come to maturitie in the Resolution of those that first made it, and the cause is, of some Conveniences to effect it, and the fears of unsettlement, after that it shall be set upon: and till there be a further ground laid for the prosecuting of this Designe; it is needlesse to give the Directory concerning the Education of Girls. In the mean time, I have thought good to publish this, with an addition of some directions for teaching of Logick; that such as can judge, may see that there is an easier and readier way to attain the perfection of Virtue and Happinesse, known and practicable, then as yet hath been published to the World, or put in practice by any; and that to set these wheels agoing, nothing is wanting, but a quiet place of abode,
and

and some assurance of necessary Protection.

Let thy prayer go along with it, to supply these wants, if thou hast any Rationall or Spirituall apprehension of the good sought thereby unto all: and if thou canst, say with the Prophet Psal. 14. v. 7. *O that the salvation of Israel were come out of Sion! when the Lord bringeth back the Captivitie of his people, Jacob shall rejoyce, and Israel shall be glad.* To the expectation and accomplishment of this hope and promise, I leave thee, in him who is *the God of our Salvation, and the confidence of all the ends of the earth, and of them that are as farre off upon the Sea,* Psal. 65 .ver. 5. in whom I rest,

*Thy most willing Servant, for the
advancement of Piety and
Learning,*

Samuel Hartlib.



THE REFORMED SCHOOL.

Concerning an Association for the Education of Children.

UPON the motion which is made of entering into a Societie, wherein a certain number of Children, Boyes & Girles, should be educated unto Religion, to Morall Sciences & Virtues; we shall return this Answer.

1. That we hope never to bee found unwilling to contribute that which we can, towards the Advancement of Godliness in any Body or Societie; or towards the Reformation of Vices, which bring the judgments of God upon this Babylonian Generation wherein we live.

2. That we conceive the wayes of Christian Associations amongst those that are of riper

riper years; and the Rules of Christian education amongst those that are not yet come to years of discretion, to be most conducive unto these ends: therefore as we shall bee willing to become serviceable, and concurre with such as entertaine these thoughts; so wee shall desire to see the hand of Providence leading, and opening a door for action to us.

3. And that we may be able to discover whether yea or no, how far, what way, and with whom this Aim should be prosecuted; we shall offer (to those that make the Motion to us, and to all others whose inclinations may bend this way) these following points to be taken into consideration: that if upon the Proposall thereof, any just Engagement doth follow; we may see God before us in the prosecution of this Enterprise.

First of the Association.

1. The Association should be only of free Persons: therefore we shall not consent to joyn with any (specially with women) but such as are free to dispose of themselves this way, either by their owne right, as being under no Parents or Tutors to whom they are accountable of their actions: or by the full consent of freinds that may pretend to have some right to oversee them, and controll their proceedings.

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2. Those that associat should not come together to live an easie life without all cares; but their whole aime should be, to advance the life of Christianity in themselves and others, with all diligence.

3. The way of entring into the Societie, of staying in it, and of going out of it, should be free: only at the coming in, and going out; the expresse motives should be declared for which the Association is taken up, or left off; that all things may be done openly and to edification, as it becometh the Children of light.

4. The form of the Societie should consist in the cohabitation of those that are associated in one house, for the joint exercise of daily worshipping of God, for the furtherance of profitable employments by mutuall concurrence, for the comfort of Table-communion, and for mutuall assistance in necessary consultations.

As concerning the place of cohabitation, it may easily be found when the number and names are known, of those that will associate.

The daily worshipping of God should be performed in Prayers, Meditations, and Conferences about the word of God: whereof, the exercises ought to be regulated in Privat and Public, jointly & severally, according to the capacity and free willing inclinations of those that shall engage to entertaine the same.

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The furtherance of profitable employments should be partly for the improvement of Rationality, Discretion and Prudence, to manage Rightly the affaires wherein every one by his calling is bound to do service unto others: Partly for the improvement of handy-works and tradings proper to either sex, which may become a relief to the poore; according to the proportion which every one shall be willing to enlarge himself in.

For the enioyment of Table-Societie; there should be a certain rate set down for dyet and other things; and a Steward appointed who should have the care of providing all things according to the rates appointed; who should give in his accounts weekly and monethly of all his disbursments.

The mutuall assistance to be given in necessary consultations should respect three things: First, the matters of spirituall concernment in common; Secondly, the matters of common outward concernment; and Thirdly, the matters of particular concernment whether Spirituall or Bodily.

Concerning all matters of common concernment, whether spirituall or outward; there should be of course some set times appointed, wherein, first, the spirituall state of the Societie, and then the outward affaires, should be taken into consideration.

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As for the spirituall state; matters of common edification are to be minded therein, as the fruit of that watchfulness which Christians ought to have over each other in the common profession of the name of Christ.

As for the outward affaires; all orders tending to regulate the same should be settled by mutuall and free consent: concerning which, this fundamentall Rule is to be observed: that, *nothing is to be counted a matter of common concernment, but that wherein every one doth knowingly and judiciously professe himself to be concerned freely and willingly.*

Concerning matters of particular concernment; any time should be free for those that stand in need of Councell, to call the rest of their Associates, either all or some, to give them assistance therein.

If these Generall Rules be first assented unto by those who are willing to engage in such a way; the particulars may be afterward set downe to be ratified by common consent, concerning the exercises of daily worship, meditation and conferences how to advance true Christianity in each other thereby, and concerning the course of their daily employments in other things.

Secondly

Secondly of the Education of Children.

The Girles should all be lodged in the same house with the associated women; to be under the perpetuall inspection of the Governesse, by whom, their severall tasks for all the dayes of the week and houres of the day, should be set unto them; and the tymes of taking an account of them concerning every thing, ordered and strictly observed.

The Boyes should be in a severall house, or part of the house so, that they should not be able at any time to have free communication with the Girles; but should be alwayes under the inspection of their Tutors who should be men belonging to the association, for such Offices which women are not fit to be employed in: and these Tutors and Teachers should all be under one generall Overseer, who should give them their tasks, and see the same performed according to settled Orders.

The main scope of the whole work of Education, both in the Boyes and Girls, should be none other but this; to train them up to know God in Christ, that they may walke worthy of him in the Gospell; and become profitable instruments of the Common-wealth in their Generations. And in order to this, two things are to bee taught them. First, the way

way of Godliness, wherein every day they are to be exercised, by prayers, reading of the word, Catecheticall Institutions, and other exercises subordinat unto the life of Christianity. Secondly, the way of Serviceableness towards the Society wherein they live, that they may be enabled each in their sex respectively, to follow lawfull callings for profitable uses; and not become a burden to their generation by living in Idleness and disorderlineffe, as most commonly those do which come from the Schools of this age.

The Rule then according to which their education is to be Reformed fundamentally, is this.

That no time of the day is to be lost without some teaching exercise; and that nothing is to be taught but that which is usefull in it self to the Society of mankind, therein fitting them for employments approvable by the Gospel; and which will bring them to behave themselves so as it becometh those who are called to walke with the lamb upon mount Sion in the presence of God, that is, as Saints in his Church.

Upon this ground, all the matters of shew and appearance, which please the fancies of men in the world, whether they be in points of knowledge or practice; (wherin all the time of the youth is most commonly spent in ordinary

ordinary Schools) are to be laid aside in the course of this Education.]

Therefore as to the Girls, the ordinary vanity and curiosity of their dressing of hair and putting on of apparell; the customes and principles of wantonness and bold behaviours; which in their dancings are taught them; and whatsoever else doth tend onely to fomet pride and satisfie curiosity and imaginary delights, shall be changed, by this our course of Education, into plain, decent cleanliness and healthfull wayes of apparrelling themselves; and into such exercises of their hearts, heads and hands, which may habituat them through the fere of God, to become good and carefull houswiues, loving towards their husbands and their children when God shall call them to be married; and understanding in all things belonging to the care of a Family, according to the Characters which Salomon doth give of a virtuous Godly woman. And such as may be found capable of Tongues and Sciences, (to perfect them in Graces and the knowledge of Christ for all is to be referred to him above the ordinary sort) are not to be neglected; but assisted towards the improvement of their intellectuall abilities.

As for the Boyes; the same Rule is to be observed in the way of their Education, both for Tongues, Sciences and Employments. So
that

that all the preposterous Methods of teaching the same ; by which, not only their time is lost , but their spirits and affections are injured to evill customes of Disorderliness, of Vanity, Pride and Self conceitedness; which is the root of all our contentions about matters of Learning and Science falsely so called : and all the unprofitable exercises of their mind and body in things which take them off from the aime of Christianity unto the customes of the world shall be altered into profitable employments which may fit them to be good Commonwealths men, by the knowledge of all things which are fundamentall for the settlement of a State in Husbandry, in necessary Trades, in Navigation, in Civill Offices for the Administration of Justice; in Peace and War; and in Oeconomical Duties by which they may be serviceable to their own families, and to their neighbours.

And if these Generall Grounds be assented unto by those that have a mind to associat, and to help forward the Education of youth for a beginning of some Reall Reformation in our age ; the particular Models both for Boyes and Girls Institution, Inspection and Employments may be soon added, and offered to their consideration.

THE DIRECTORY
For the Particular Education of Boyes.

IF we suppose that fifty or threescore Boyes are to be educated, according to the Principles heretofore mentioned; we conceive the care which is to be taken of them should be ordered after this manner.

1. Let there be one Governour over them, and three Ushers under him.

2. Let these Ushers do all things by the Governours Direction, which he shall after previous Consultation with them, give: that they may the better understand their work, and go about it with cheerfulness.

3. And that these may without distraction be able to attend their work; Let them be provided with all outward things necessary for lodging, food, and raiment, without their cost or care, by the Diligence of him that shall be Steward of the Association.

4. Let the Governour and Ushers observe the settled Rights and Duties of their severall places, and the Determined Rules of education towards the Children.

The Rights and Duties of the Governour, and Ushers places.

1. **A**S it is the Governours Duty to instruct and Oversee the Ushers in all things which concerne the Children ; so it shall not be lawfull for Ushers to alter any thing in the Orders which the Governour shall settle, without his knowledge and approbation.

2. The Governour shall have power, as to, provide and place, so to displace the Ushers so as he shall see cause : which cause, it will be fit for him to make known to any of the Association, who shall desire to be informed thereof.

3. The Governour shall give all his Directions in writing to the ushers.

4. Every Usher shall have a peculiar number of Schollars committed to his inspection whose lodgings shall be together, all next unto his Chamber, that in the night-season as well as by day, he may oversee them.

5. The Ushers shall see their peculiar Schollars rise and go to bed, at the houres appointed : and when their Schollars are retired or gone to bed ; they shall come to the Governour every evening before they go to bed themselves ; that they may conferre about their matters together.

6. The

6. The Governour shall either by himself or some other see both the ushers and their scholars in their severall quarters at the set hours, before he goeth to bed himself : and the Steward shall see the other servants retired and all the doores shut at the hour appointed, and shall bring such keyes to the Governour as he shall ordain to be brought unto him.

The Rules of Education.

The Chief Rule of the whole Work is, that nothing may be made tedious and grievous to the Children : but all the toilsomeness of their business the Governour and Ushers are to take upon themselves ; that by diligence and industry, all things may be so prepared, methodized and ordered for their apprehension ; that their work may unto them be as a delightfull recreation by the variety and easiness thereof.

The things to be lookt unto in the care of their education, are 1. Their Advancement in Piety. 2. The Preservation of their Health. 3. The Forming of their Manners. 4. Their Proficiency in Learning.

Concerning their Advancement in Piety.

That they may be advanced in Piety ; they shall be exercised every day, 1. in Prayers. 2. in

in Reading the Scriptures. 3. in Catecheticall conferences. 4. And on the Lords day in the duties of solemne worship.

Their daily Prayers, reading of Scriptures, and conferences, shall go together in this order.

In the evening when the time of retiring is come, every Usher shall see his Scholars in their Chamber (for if they could be all that belong to each Usher made to sleep in one large Chamber like a gallerye, two and two in a bed; the way of overseeing, and uniting them in their exercises would be most commodious:) and when they are going to uncloth themselves, one of their number shall be taken in his turn according to a List, to go before the rest in a short prayer or the Usher himself shall do it before they begin to put off their Clothes; each of them kneeling at the beds-side where he is to sleep: and the prayer being ended, he whose turn it is shall read unto them some part of the Holy Scriptures, while they uncloth themselves; and pray in two or three words for a blessing upon their rest. He whose turn it is to do this duty, shall sleep that night with the Usher to whose care he is committed; and in the Morning shall rise with him half an hour before the rest; to waken his fellow-Scholars (at the hour appointed) to cause them rise, which whiles they are a

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doing ; and putting on their clothes , and combing their heads ; he shall againe with a previous short ejaculation , read some part of the Scripture unto them ; and with a short prayer (every one of the rest kneeling or standing by the bed where he slept) thank God for his preservation over them in the night past , and crave his direction , blessing and protection for the day following. This is to be done within the space of half an hour, to be measured by a Sand glasse : after which time , every one shall go abroad for the space of another half hour to stretch , wash , and cleanse himself : till , by the ringing of a Bell, the whole family be called together : at this meeting, the Women and Girls shall be in one roome by themselves , and the Men and Boyes in another , so that they shall not see one another , and yet both be able to heare him , who shall be appointed to go before them all in the family-duty. He shall be some man of the Association in his daily or weekly turn , as they shall appoint it , who shall with a short prayer crave a blessing upon their meeting , and read a parcell of the Holy Scriptures , and conclude the Reading with a short prayer : all which shall not exceed the space of half an houre : and the next half hour following shall be spent in Catechetical exercises and conferences according to the order which

which the Governour shall settle in that manner differently towards the different Ages and degrees of proficiency in the younger and more Aged Scholars. As for the members of the Association ; their conferences shall not be stinted within such a time , but may be extended at pleasure : only the way how they ought to be ordered , that all may profit thereby, and confusion may be avoided ; is to be determined by the Governour, with their approbation.

At Dinner and Supper-time (which shall not exceed half an houre) one of the Children shall in his turn daily crave a blessing in the name of all , upon their food : and read a part of the Scripture unto them while they are at table ; and when they have done, they shall jointly sing a stave or two of a Psalm of thanksgiving.

After supper , before they go to their Chambers , they shall meet all againe in their severall roomes each sex by themselves , to joyn in prayer , and in reading the word , as in the morning they did , for the space of half an hour : and another half hour afterward shall be spent in Conferences , wherein the Children shall be encouraged , and accustomed to propose Questions to their Teachers , or to one another concerning matters of doubt which may have been incident unto their thoughts, either from the reading of Scripture or some,

other thing observed in the day-time : which being done , they shall all retire unto their severall quarters, and prepare to go to bed.

This Course of daily exercise in Piety is to be continued without interruption , no body is to be exempted from it, but only in case of sickness.

On the Lords day , over and above this daily sacrifice within doores to be observed ; the Children shall be brought forth unto the public meetings , to joyn with the Congregation of others in the worship of God ; and at the intervalles of times between the public meetings , and the last Sermon and supper-time ; Conferences shall be entertained with them , concerning the things which they have heard.

And if those of the Association should entertain any Prophetickall exercises amongst themselves, or with others, from without; then some of the most advanced Schollars should be admitted to be present with them.

This Care of advancing Piety and keeping the Lords day , is to be made the Chief of all things belonging to their Education.

Concerning the Preservation of their Health.

The next Principall Care is concerning the Preservation of their Health , wherein all things

things belonging 1. to their Diet. 2. their sleeping. 3. to their bodily exercises 4. and to their Cleanliness are to be rightly ordered, and overseen; that the Orders may be observed.

Concerning their Diet.

Their Diet shall be appointed for every day of the week what it shall be, and when it shall be given them.

Their Breakfast, at 8 of the clock in the Morning, of Bread and Butter or some other thing. they may be at it for the space of half an hour.

Their Dinner of good healthfull plain food, a Competency is to be upon the table for them precisely at 12 of the Clock.

Their Supper of some food of light and easie digestion is to be upon the table precisely at half an hour past six of the clock, and before seven, taken away.

Bread and beer of good quality shall not be refused to any that shall desire it, in case of not being satisfied with the ordinary allowance.

In case of Sicknes there should be a peculiar room appointed for them, and some to attend them, with such a Diet as shall be prescribed, and to entertain them with such thoughts and conversation, as shall be fitting for their disposition of mind.

Concerning their Sleep and Rest.

In Winter, the Aged Scholars shall be wakened at five; in Sommer, at four of the Clock in the Morning: the younger, in Sommer at five; in Winter, at six in the Morning: and they shall all be in bed before, or at nine of the Clock at night. The Governours, Ushers and Steward, if they be in health, should not go to bed till Ten.

Concerning their Bodily Exercises.

They shall exercise and stir their Bodies in the morning-season before dinner from 11. till 12 a clock, and before supper they shall again exercise themselves in Sommer, from half an hour past five, till half an hour past six, and in winter, from five till six, and from half an hour past twelve after dinner, till half an hour past one, it shall be free for them, to do privat busineses, in their Chambers or else where.

The particular wayes of Exercising their Bodies shall not be left at random, but ordered to some advantage of the Association and of their own experience in matters either of Husbandry, or Manufactures, or of Military Employments.

Concerning their Cleanliness.

They must be taught Cleanliness without Curiosity ; and made in love with it , as it is usefull for Health ; in which respect the Care of it must be recommended to them , and observed in them. 1. in their Feeding, that through grediness they eat or drink nothing that is nasty. 2. in their Body , head hands feet and clothing ; that they keep themselves from filchiness of sweat , from vermine and other uncleanness. 3. in their Chamber, that they defile it not with stench , or suffer it to be unswept ; but that they keep it clean and sweet with refreshment of aire.

Concerning the Forming of their Manners.

Godliness and Bodily Health are absolutely necessary ; the one for spirituall , and the other for their temporall Felicitie : Next unto these two , to make up and perfect the state of their Happiness ; Care must be taken of their Manners. by which word I understand their outward life, aswell in respect of the Actions which they do , as in respect of their Carriage and behaviour in performing the same : that those may be Just and Honest, this , Civil and unblameable. For , good

Manners, in this sense, are farre to be preferred unto all Humane Learning of what kind soever; because without Morall Honestie all the perfection of Learning is nothing else but an Instrument of wickedness to increase and aggravat the miseries of Mankind: whereas without Learning this alone with Bodily health is a sufficient ground to partake of temporall Felicitie.

And because in the ordinary Schools this Care is wholly neglected and the youth is left to habituāt it self to its Corrupt inclinations, while their wits are sharpened and exercised in all the subtilties of Humane Arts and Sciences; therefore Satan doth fortifie his strong holds by these within them, to make them impregnable: and their Spirits (as we find by dolefull experience in these times) are heightned to that degree of unconscionableness in Deceit, Mischief and Malice, that nothing in former Ages can be compared therunto. which should make us so much the more carefull to rectifie this evill in our Scholars, by how much it is neglected by others, and destructive to all.

The way then to Reforme our Scholars in this matter, and the Care to be taken of them should have two parts. The one should relate unto the Inward Principles of Morallitie; to work the true Impressions thereof upon their spi-

spirits. The other should relate unto their Outward behaviour and carriage towards their neighbour, to make it decent and without offence. and the first of these cannot be rightly taken up without the last, because without the observation of their unseemly behaviour and offensive Carriages; a discoverie can not be made of the diseases of their soules, that the Remedies of wholesome Instructions, Admonitions and Corrections may be applyed therunto. This then is the Master-peece of the whole Art of education, to watch over the Childrens behaviour in their actions of all sorts, so as their true inclinations may be discovered; that the inward causes of their vicious disposition and distempers being found out; the true and proper Remedies thereof may be applyed unto them. And this is to be the subject whereof the Governour and Ushers are to have daily Conference every night: that upon the particular discoveries of the severall inclinations of their Scholars by the qualities of their unruliness; they may judiciously determine what to do with them, and how to proceed towards them, to reforme that which is amisse. where we conceive this studie should containe these endeavours.

First, to discerne the proper Character of every Childs humour by his behaviour; to

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discover

discover the predominant qualitie thereof, and what is good, and what is evill in it.

Secondly, to contemplate rationally the inward disposition and frame of his spirit; to find out the Principles, by which he is led, and from whence that humour and behaviour doth arise; and the Impressions of virtue whereof he may be made capable.

Thirdly, to determine the way how to deal with him; that is, not only how to correct his outward visible misbehaviours; and to encourage him in that which is good and decent: but how to make him sensible, and rationally apprehensive of the true grounds, both of the correction, and encouragement.

Here againe I conceive their studie must runne in these Channels.

First, what peculiar Restraint to lay upon them, lest they get a custome in that which is evill.

Secondly, what Rationall Maximes, and Rules of Moraltie to infuse unto them, according to the degree of their Capacitie, and bent of their inclination in that which is good.

Thirdly, how to ingraft those Rationall Maximes and Rules upon the Main Principles of Godliness; that their spirits may be raised, and their resolutions exalted to do things Morally Just and decent, not only because
because

because they are found in reason to be so; but because they who do them, are bound in Conscience through Love and feare towards God to do all things as in his presence, with delight and care to do alwayes that which is well pleasing in his sight. So that all Morall Actions to free them from Hypocrisie, and make them truly virtuous; that is, without all Leaven of pride and self-seeking (which will mixe themselves with spirituall actions also, if care be not taken to set our heart aright) must be reduced unto the grounds of Christianity; and made conformable unto the life of Christ; by comparing our way, and our mind in following him, with his way and his mind in walking before us amongst men towards God. And except their education by the Reformation of their Manners finally tend and result unto this; it will avail them nothing towards the salvation of their souls; it will only make ^{them} ~~lesse~~ ~~them~~ hurtfull unto the societie of mankind.

Now the particulars which are subordinat unto this Care and studie are innumerable; but yet certain generall Rules may be prudentially set down, according to which, they should be limited and directed to order their Conversation and behaviour towards the ends aforesaid, and by which, those that watch over them should take notice of their wayes
and

and give an account thereof unto the Governour of which Rules it will suffice at this time to give these Heads.

First, laws are to be published amongst them concerning their very looks, their angry words, and their hasty actions, proceeding from passion, and tending to the breach of Christian Love; forbidding the same under the notion that they are contrary to the life of Christ.

Secondly, Rules and Directions (leading them to the practice of Justice, Equalitie, Meeknesse, Humility, Love and Liberality; and to the hatred of Iniuriousness, Pride and Covetousness) are to be published, and hung up in their Chamber and School, and made familiar and plain unto their Capacity and Memorie.

Both these sorts of laws may be gathered out of Salomons Proverbs for the main substance thereof, and from other Scriptures; and so be delivered as the will of God unto them, to oblige their Conscience therunto.

Thirdly, the law of watchfulness (which they ought to have over themselves for the observation of these Rules) is not only to be taught them; but some that are more stayed then others, and better set, are to be made Monitors of the rest, and besides the Monitors, Spyes are to be appointed to oversee them; and

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in Cases of grosse falling, after due admonitions, some exemplary punishments of shame and smart may be used, that all may feare.

Fourthly, the great law of Truth and of Faithfulness (to suppress the baseness of Lying and of Deceitfulness in words, Promises and Actions) is above all other Rules to be prescribed and pressed upon them in their dealings towards one another: and special care is to be had to observe the practise thereof.

And, that the lying and deceitfull spirit may be hunted out from amongst them; a special reward is to be proposed unto every one that shall, upon due admonition of his neighbour before witnesses, discover to the Usher any matter of falshood practised by any. For, nothing doth more inwardly corrupt the spirit, then a course of falshood; nor doth any thing more deeply discover the wickedness of the heart and want of true virtue, then this.

Fifthly, the Civilities to be used towards Strangers, to receive and entertaine them courteously; to be generously affected towards them, and the way to maintein the Principles, and Practises of public Spiritedness without ostentation and vain-glory, should be described and taught them.

Sixtly and Lastly, the seemly way to carry their Bodies, to looke upon people stayedly and freindly in their salutation and conversation

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sa^ution with them should be made known into them by Example and Rule.

Concerning all which Directions, how to propose, and apply them, towards the corrupt dispositions of Children to rectifie the same; the Ushers themselves are to be taught their Duty, what to observe in them, and how to proceed in dealing with them. and it must be the Governours great and speciall care to see the Ushers well principled and practised in this way, for, upon their abilitie, faithfulness, and diligence all depends.

Concerning their Proficiencie in Learning.

The last and least part of true education is only minded in the ordinary Schools, and that in a very superficiall and preposterous way; for Children are taught to read Authors and learn words and Sentences before they can have any notion of the Things signified by those words and sentences, or of the Authors strain and wit in setting them together: and they are made to learn by heart the Generall Rules, sentences, and Precepts of Arts, before they are furnished with any matter wherunto to apply those Rules and Precepts. And when they are taught these things wherein Reason is to be employed, they are lead into a Maze of subtile and unprofitable

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table Notions ; wherby their mindes are
up with a windy conceit of knowledge : their
affections taken off from the plainnesse of
Usefull Truths ; their naturall Corrupt incli-
nations to pride, vain glory, and conten-
tiousnesse not reformed, but rather strength-
ned in perversitie ; So that they become
both unwilling to seek, and incapable to
receive any Truth either Divine or Humane
in its simplicitie : for their heads are filled
with certain termes and empty shewes of
learning ; which neither containe any sub-
stance or solidity of Matter ; or give them any
addresse by way of Method to make use of
that which they know for the benefit of
Mankind.

Now, to Rectifie this cause of our Igno-
rance and Disorderliness which hath taken
possession of all Schooles and Universities, and
hath spread it self over all matters of Humane
Learning ; wee shall endeavour to seek out the
true Method of teaching Sciences, by the
Grounds and Rules which, we hope, none,
that is Rationall and free from prejudice, will
Contradi&.

Concerning the Grounds and Rules of teaching Sciences.

We take this to be the fundamentall and
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invienable Maxime of all Order to be kept in teaching of Sciences, and educating of youth unto any part of Learning: Viz. That the whole way of his Undertaking must be made answerable unto the nature of the End, and proportionat unto the property of the Meanes and Parts of Learning: and whatsoever is not subordinat unto that, and proportionat unto these, is done irrationally and unprofitably towards the advancement of Learning. The Grounds therefore from whence we shall gather all our Rules to direct us in the true Method of profiting, are Three; the first, concerning the End; the second, concerning the Meanes; the Third, concerning the Parts of Learning.

Concerning the End of Learning.

The true End of all Humane Learning is to supply in our selves and others the defects, which proceed from our Ignorance of the nature and use of the Creatures, and the disorderliness of our naturall faculties in using them and reflecting upon them.

From this Truth follow these Rules of Teaching.

1. That nothing is to be counted a Matter of true Learning amongst men, which is not directly serviceable unto Mankind towards the

the supply of some of these defects, which deprive us of some part of our naturall Happiness.

2. That if any doth Teach or Learne any Science for any other end but this; he doth (by the false end, which he proposeth to himself in Teaching or Learning) pervert the Truth either of the Science, or of the Method thereof, or of both: by which meanes, the Remedie of our disease being spoiled; he maketh so farre as in him lyeth our sickness incurable.

3. That none ought to be taught any matter of science, before he doth understand the true end, wherefore he is to learne it, and how he ought to use it, towards that end: for if he be ignorant of these two, he will not only lose his labour; but may become hurtfull to himself and others by his knowledge. *For as a thorne goeth up into the hand of a drunkard; so is a parable in the mouth of fools. Prov. 26. 9.* And at the best he will be unserviceable and disproportionat to others in his walking therby: *For as the legs of the lame are not equall, so will a parable be in the mouth of a foole Prov. 16. 7.* Now, he is a foole who knoweth not the end and use of the things which he hath.

4. That to marshall sciences rightly, that they may be taught orderly and profitably; The
subor.

Subordination of their severall ends to each other (as they jointly relate unto man to supply his defects) and the way of teaching the same (as it is futable to the Capacity of those that are to be taught) must be observed : for if these things be not observed ; either the sciences will be made useles to each other , or all of them , to him that is taught. For , how can he, that reacheth them , benefit his Scholars therby ? For the Encyclopedia of Sciences must answer the wheel of humane faculties, and this wheel must answer the Circle of the Creatures whence man is to supply his defects. As then in a watch , one wheel rightly set , doth with its teeth take hold of another, and sets that a work towards a third ; and so all move one by another , when they are in their right places for the end for which the watch is made : so is it with the Faculties of the humane nature , being rightly ordered to the ends for which God hath created them: but, contrarywise , if the wheels be not rightly set, or the watch duly wound up, it is useles to him that hath it; and so it is with the Faculties of Man ; if his wheels be not rightly ordered and wound up by the ends of Sciences in their subordination ; leading him to employ the same, according to his Capacity , to make use of the Creatures for that wherunto God hath made them; he becomes not only useles, but

but even a burthen, and hurtfull unto himself and others by the misusing of them.

Concerning the Means of Learning.

The true Means by which all Humane Sciences are attainable; are three, and no more; The First, is Sense; the second, Tradition; the third, Reason.

Sense is the first, because it conveighs unto our Imagination the shapes and images of all things, which memory doth keep in store, that Reason may make use thereof. nor can any Tradition be entertained with profit, but that, whereof the Imagination hath received from Sense the originall representations.

Tradition is the second, because it is nothing else, but a Communication of those Observations which others have made of the Creatures, wherby our want of knowledge of them is supplied. For we ought, *To Enquire of the former Age, and be willing to make search of their Fathers; because we are but of yesterday and know nothing, and our dayes upon Earth are a shadow. Job. 8. 8, 9.*

Reason is the third and last Means of Humane Learning, because it makes use of all the reports of our Senses, and of other mens Tradition; and without these it can make no inferences to enlarge knowledge, or

teach us the right use of Creatures for necessary occasions.

From the subordination of these Means to one another, and their properties to advance us unto Learning; we shall gather these following Rules of teaching Arts and Sciences.

1. The Arts or Sciences which may be received by meer Sense should not be taught any other way: for it is no wisdom to make work to our selves: *Frustra fit per plura quod fieri potest per pauciora.*

2. Whatsoever in any Art or Science can be made obvious unto Sense, is first to be made Use of, as a Precognition unto that which is to be delivered by way of Traditionall or Rationall precept.

3. As in Nature Sense is the servant of Imagination; Imagination of Memory; Memory of Reason: so in teaching Arts and Sciences we must set these Faculties a work in this Order towards their proper Objects in every thing, which is to be taught: whence this will follow, that as the Faculties of Mans soul naturally perfect each other by their mutuall subordination: so the Arts which perfect those Faculties should bee gradually suggested; and the Objects wherewith the Faculties are to be conversant according to the Rules of Art should be offered in that Order, which is answerable to their proper ends
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and uses and not otherwise: for the proportion of every thing to its owne end, doth determine the order and place wherein we are to make use of it: for nothing is truly Usefull, but as it is, in its naturall place.

4. As Childrens Faculties break forth in them, by degrees to be vigorous with their years and the growth of their Bodies; so they are to be filled with Objects whereof they are capable, and plyed with Arts: whence followeth that while Children are not capable of the Acts of Reasoning; the Method of filling their Senses and Imaginations with outward Objects should be plyed: Nor is their Memory at this time to be charged further with any Objects then their Imagination rightly ordered and fixed, doth of it self impresse the same upon them. Moreover hence followeth, that no Generall Rules are to be given unto any, concerning any thing either to be known or practised according to the Rule of any Art or Science; till Sense Imagination and Memory have received their Impressions concerning that wherunto the Rule is to be applied; and so farre as those faculties are stored with matters of Observation, so farre Rules may be given to direct the mind in the use of the same and no further. Lastly hence followeth, That the Arts or Sciences which flow not immediatly from parti-

particular and sensuall objects, but tend immediately to direct the universall Acts of Reasoning, must be taught after all the rest: because their Use is to Regular that, which is to make Use of all the rest, viz. the Rational faculty; therefore it is a very absurd and preposterous Course to teach Logick and Metaphisicks before or with other Humane Sciences, which depend more upon Sense and Imagination then Reasoning.

Concerning the Parts of Learning.

The Parts of Humane Learning wherein Children are to be exercised are first the grounds and precepts of profitable Arts and Sciences. Secondly, the Tongues which are most usefull to enlarge the knowledge thereof.

By profitable Arts and Sciences, we meane all matters of knowledge which direct man to the right use of all Creatures, and the ordering of his owne Faculties about them.

The Tongues which are ordinarily most usefull to enlarge the knowledge of these Arts and Sciences, are Latin and Greek; and that which in an extraordinary way will in due time be usefull heerunto, is Hebrew, and the other Orientall Tongues which are a kinne unto it.

Concerning these parts of Learning,
we

we lay down these Maximes as grounds of teaching the same.

1. Arts and Sciences are immediatly usefull by themselves to restore the defects of our nature by the Creatures.

2. Tongues are no further finally usefull then to enlarge Traditionall Learning; and without their subordination unto Arts and Sciences, they are worth nothing towards the advancement of our Happines.

3. The Immediat Use of Tongues is only to Understand what others say to us, according to their custome of speaking; and to expresse our mind unto them significantly according to our custome.

From these Maximes we gather these following Rules of Teaching.

1. The teaching of Arts and Sciences ought not to be suspended upon the teaching of unknown Tongues, but made familiar unto the childrens capacity in their Mother-Tongue first; and afterward enlarged by the Use of other Tongues.

2. The Arts and Sciences which lead us most directly unto the Use of the creatures without any reflexion upon our own Faculties are first to be taught; because they may be taken up by the simple Acts of Sense, Imagination and Memory, without much Reasoning.

3. The

3. The Arts and Sciences which lead us to reflect upon the use of our owne Faculties, are not to be taught ; till we are fully acquainted with their proper Objects , and the direct AAs of the Faculties about them.

4. The knowledge of Tongues is the proper effect of Memory , and not of any Reasoning abilitie , because they depend upon the Observation only of that which is the constant custome of people ; and not upon any rationall inducement why they do so. whence followeth. 1. That those things which are most helpfull and subservient unto memory , are to be set a work in teaching Languages ; rather then those that employ the Judgement. 2. That the wayes which fix and order the Imagination most effectually towards the sound of the words , and the thing signified therby, are most advantageous to this way of teaching. 3. That the teaching of words , is no further Usefull then the things signified therby are familiar to the Imaginatio; and that the teaching of Rules before the Materiall sense of the words is known , or before the formall coherence of things which their construction is to represent in a Sentence , can be apprehended ; is wholly preposterous and unprofitable to the Memory.

5. So farre as children are capable of Traditionall knowledge : so farre in every degree of

of Science they may be taught the Tongues which serve for that Use; but till they be fitted for the one, the other is Uselesse to them.

6. Whatsoever in the teaching of Tongues doth not tend to make them a help unto Traditionall knowledge, by the manifestation of Reall Truths in Sciences, is superfluous, and not to be insisted upon, especially towards Children. whence followeth that the Curious Study of Criticismes, and observation of Styles in Authors, and of straines of wit, which speak nothing of Reality in Sciences, are to be left to such as delight in vanities more then in Truths.

From these Maximes and Rules the Rationality of the ensuing Method may be made out to the full, if time did permit; but we shall not insist upon that now: only we shall shew that by them we are led to teach and consider matters of Learning in this Order.

First, to consider the Children that are to be taught; Secondly, the Things which are to be taught unto them; Thirdly, the Manner and way of teaching the same.

Concerning the Children; we must reflect upon their ordinary Capacities, and distinguish the same into their naturall degrees.

Concerning the Things which are to be taught; we must reflect upon a twofold proportion therein. first, we must find out that

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which is proportionat to the degree of every ones Capacity. Secondly, we must order every thing which is futable to each Capacity, proportionally to the end for which it is to be taught, as in its proper place it is subordinat unto other things, which must follow in the Course of Education.

Concerning the way and manner of teaching and proposing the same; we must studie by the properties of Things to be taught, to find all manner of advantages; and according to circumstances determine the way which will bring no losse of time, nor be wearisom and tedious to the Children, and which will make the matters taught most easie for their apprehension, and delightfull to their affections in apprehending the same. For, I suppose that this Conclusion in this matter is as firme, as any Mathematicall Demonstration in other matters. viz: If all degrees of Childrens Capacities be fitted with proper Objects, if none of the Things, which any of their Faculties can receive, be left untaught, if no time be lost in teaching, nor any thing offered before it be seasonable, if that which is taught in the first place be not disiointed from that which followeth after, but made a steppe therunto.

If all matters offered, by their conjunction, make him that receiveth them a perfect man,
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leading him without distraction to his true end : and if no servile constraint be laid upon the inclination of him that is taught, by forcible meanes to break his Spirits : but his affections raised to a delightfull willingness, to receive that which is offered ; by allurements and generous insinuations readily.

If (I say) all these things be observed, in the Course of Teaching ; then little or nothing will be wanting, which can be wished for towards the advancement of learning in this way, or can be prosecuted by rationall endeavours and humane Industry.

*Of the Ordinary degrees of Childrens
naturall Capacities.*

Till a Childs tongue be untied and confirmed in some measure to speak and imitate the ordinary Sounds of speech ; he is to be counted an infant. and this ordinarily is not till Children be four or five yeeres old : yet, before this time their Senses are awake, their Imagination is not idle ; and therefore ought to be exercised with some Objects fitt for the framing of their Memory towards future preparatives of Learning.

From the time of Infancy, till the age of twentie ; there are three different degrees of Capacities, which ordinarily shew themselves

in three periods of yeeres ; from foure or five, till eight or nine , is the first. ; from eight or nine, till thirteen or fourteen , is the second : and from thirteen or fourteen , till nineteen or twenty, is the third period of Capacity.

In the first of these periods , the Capacity of Children is none other but Sense and Imagination , with the beginnings of Memory.

In the second , it is Imagination and Memory with the beginnings of Reasoning , and now we count him past Childhood , and becomes a youth.

In the third, he is Capable of all the A&S of Reasoning , and of the Principles of Judgment and Prudencie ; wherby he ought to order himself in all things aright towards God and Man. And when a Schollar is brought thus farre , he is not to be under Tutors any longer : and till he be brought thus farre , he is not safe , without some Tutoring and Discipline.

Concerning the Things to be taught to each degree of Capacity.

First , while a Child is capable of nothing but what he receiveth by Sense and upon the similitudes of sensuall Objects , by Imagination; nothing is to be offered unto his Memory but what can enter in, by those dores. Here the he is to be taught.

1. To

1. To speake his Mother-Tongue ; distinctly.

2. To read his Mother-Tongue readily, intelligibly, and without any affectat Childish tone, with his owne naturall sound of speech.

3. To write his owne Mother-Tongue legibly ; or any other Tongue what soever, as to the forming of any Letters after a Copie.

4. To draw all manner of Lines and Mathematicall Figures with a Ruler and compasses ; and other Lines and Figures, which are the Rudiments of Painting to represent the lineaments and features of things.

5. To know the signification of all Numericall Figures ; and to observe by the eye, eare and hand, the differences of Things in respect of their number, their parts, their quantities, their measures, their proportions and disproportions, and the like.

6. To take notice of all Things offered to his Senses ; to know their proper names, to observe their shapes ; and to make circumstantiall descriptions thereof by word of mouth, and painting in black and white.

7. To mind, and repeate the things which are to be related unto him ; which should be the Generall Heads of the History of the world ; whereof the ground-work should be

the Historicall Catechisme of the Bible: and the superstructure, a description of the Parts of the world; of the Things that are therein; and especially of the Nations of the earth; and the Chiefest Revolutions and Changes which are befallen to his owne Nation since the beginning thereof.

These things ought to be taught unto Children before they come to any of the Usherts belonging to the Association; for (none under eight or nine) ought to be brought unto them, except they be sufficiently qualified before that age with these endowments: and that these things may be taught sufficiently, as a preparative for their future education in Sciences; a peculiar School should be appointed as a Nursery not farre from the place of the Society, wherein Children of this Age should be trained up according to the Directions which may be given to that effect: and although the Governour should not be charged with any peculiar inspection over them; yet he might be obliged to repaire thither at certain convenient times to helpe with Counsell, by conferring with those that should teach them these things, and to oversee their way, and direct them chiefly in point of Manners; how to prevent evill Habits, and the Customes of perverse inclinations, which then beginne to take head and discover themselves: and for want of due preven-

prevention become ordinarily a great prejudice to their Education in after times.

Secondly, from eight or nine, till thirteen or fourteen, a Childs Imagination and Memory is throughly to be cultivated and exercised; supposing then, that a Child can speake his Mother-Tongue distinctly and readily, can read and write, and hath gotten a generall view of all things, and is able to name that which is obvious to his Sense by its proper name in his Mother-Tongue: yet these impressions and shapes of Things are like a Chaos or confused masse of notions in his head. These now in the second Period of his Education are to be Ordered, and his Memory so exercised about them, as to prepare him to entertaine the Traditionall and Rationall Learning which in the third and last period of his education is to be delivered concerning them. Heer then the Children shall be exercised.

1. In writing faire and readily; and in drawing the pictures of Things whereof the Impressions are to be fixed in their Memories. <

2. In observing all Things Naturall and Artificiall extant in the world, wherunto their Imagination shall be ledd in a certain Method; to cause them reflect orderly upon them, and observe in them their severall

kindes, coherences, differences, parts, actions, properties, uses, and references unto Man by Trades and Manufactures.

3. In Learning all the Names of the Things themselves and of that which doth belong unto them in Latin, in Greek and in Hebrew; which Tongues they shall withall Learne to Reade and write; and to Interpret so farre, as their experience in the observation of Things doth go, and no further: For so farre their *Fanua's* in each Tongue shall go and be offered to them *pari passu*, with that which they have been taught to observe in the Things themselves.

4. In the Practicall Parts of the Mathematicks; wherein they shall be taught (together with their Latin, Greek, and Hebrew names.)

1. The Geographicall Descriptions of the world, and of the Kingdoms thereof in Globes and in plain Tables.

2. The Astronomicall descriptions of the Heavens, in Models, Globes and plain Tables.

3. The Arithmetickall Rules of Addition, Substraction, Multiplication, Division, the Reduction of Fractions, and the Rule of Proportions called the Golden Rule, and no further.

4. The Geometricall Doctrine of Lines, Surfaces, Bodyes, and the Rules of Measuring the same, and shewing their proportions, together

gether with the experimentall way of Measuring Land, and the use of the Instruments belonging to that part of Mathematicall studies.

5. In the observation of Husbandry and Gardening ; of Fishing and Fouling ; and the generall Rules thereof.

6. In the Anatomy of Mans Body by a Model and Picture of all his parts, with their names in the Learned Tongues.

7. In the Summary knowledge of the History of the four Monarchies of the world, and of their own Nation : together with a Brief of the History of the Church since Christs dayes.

8. In the Rudiments and necessary Rules of Grammaticall constructions ; so farre as mayinable them to interpret their *Fanua's* whereof they shall have Learned the Single words with the observation of the Things themselves : and these Rules in all the three Languages are to be given ; first in that wherein they agree ; and afterward in that wherein they differ : and exercised in the reciprocal Translations of their *Fanua's*.

Thirdly from thirteen or fourteen, till nineteen or twentie ; the things which are to be taught them , and wherein they shall be exercised , are all the Usefull Arts and Sciences , which may fitt them for any employment in Church and Common wealth. Here then

all the Meanes of Traditionall and Rationall Learning are to be set a foot; and to this effect they shall be taught their Grammar Rules more exactly and fully then formerly; and brought to read Authors in all the Sciences whereof they have gained the foundations; with directions how to observe the Marrow, and Method of them; and out of them to gather to themselves an Encyclopædia. To this effect.

1. The Latine Authors of Agriculture Cato, Varro, Columella, may be put into their hands by parcels, to be an enlargement unto that which they have already been taught concerning Husbandry.

2. The Naturall History of Pliny and Others, by choice parcels are also to be perused by them; and brought home to what they have formerly seen; together with the Histories of Meteors, Minerals, &c.

3. In like manner some Models and books of Architecture, Enginry, Fortification, Fire-works, Weapons, Military Discipline, and Navigation are to be looked upon.

4. The Greek Authors of Morall Philosophie, Epictetus, Cebes, Arrianus, Plato, Xenophon, Plutarch; and some Latin Tracts in this kind should be read by them; and an account taken of their proficiencie thereby.

5. The Doctrine of Oeconomicks, of Civill Govern-

Government , and Naturall Justice and Equitie in the Laws of Nations should be offered unto them ; as the grounds of that *Jurisprudencia* whereof the summe is to be given out of the Institutions of Justinian and *Regulæ Juris*.

6. The Theorie of all the Mathematicks, with the full Practise of that which was deficient in their former Institution ; where the Opticks with the Instruments belonging therunto , and the Art of Dialing is to be entertained ; and in Arithmetick the way of keeping Accounts.

7. The Principles of Naturall Philosophie and the main Grounds of Medicin , with the Instruments of Distilling and other Chemicall Operations , and the Art of Apothecaries, are to be offered unto them partly in books, partly in the Operations themselves by an ocular inspection thereof , and of their drugges.

8. The Art of Chirurgery described in books , with an ocular inspection of all their tooles , and Compositions of plaisters and ointments , and the use thereof.

9. The Rules of Logick , Rhetorick and Poesie ; shewing them first how to Analyse Authors, and observe their Art of Reason and Utterance to perswade ; and then how to order their owne thoughts and expression , to search

search out Truths and to declare the same; Historically, Philosophically, Oratorically, Poetically.

10. Directions for the studye of all Humane Histories and what to observe in them, for the attainment of Wisdome and Prudence in the Government of a mans owne life; where with the Directions to observe the wayes of others; the Rules of Judgement, Discretion, Prudence and Civill Conversation to order their owne wayes aright towards all, are to be given unto them which is to be concluded with a speciall recognition and insight into Salomons Proverbs, and Ecclesiastes. And so they are to be sent into the world to apply themselves to any employment, or more particular study wherunto God shall call them. For now they will be fitted therunto so farre as Humane Industry can advance them.

Amongst all these, I have not mentioned Musick, Vocall and Instrumentall, by it self, because it is a part of the Mathematicks; and the Practise thereof is to be insensibly at spare times brought in use amongst them as a part of their Recreations. Nor have I mentioned any Hebrew books which they should read; because their daily reading of the Scriptures should be in Greek and in Hebrew: and their Analyticall exercises should be employed for
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the most part in resolving the Rationality of the Scripture about the most Materiall Doctrines of Divinity : Nor have I mentioned any particular Body of Divinity to be put into their hands ; because I speak only of the Method of Humane Learning , how it should be delivered ; and no Divinity is to be taken up from the teaching of men : it is to be received from the Holy Scriptures alone : and the daily Catechetickall exercises and conferences which will be appointed for these of this third period ; will sufficiently by Gods blessing enable them in all the Truths of Divinity both Theoretickall and Practickall ; so that there will be no need of any other Institution in that kind.

Thus I have done with all the Matters which are to be taught to each degree of Capacity within the period of the years appointed for their education : now followeth the Last point of this Method ; how all this is to be taught and expedited within the time appointed with ease and delight.

*Concerning the Manner and way of Teaching
all these things, to Each Capacity.*

In the Manner of Teaching , experience will bring the way unto perfection , if it be prosecuted , according to the Maximes , and Rules

Rules heretofore mentioned, in a Constant Course. And to be able to put the design in Practise; three main things must be ordered: first the taskes of both the lesler and the greater parts of the work must be determined according to times and seasons; what and when every thing is to be done.

Secondly, the way of proposing to the Schollars that which they are to receive, and of entertaining them to dwell upon it, till it be fixed in their mindes, must be regulated.

Thirdly, the meanes and instruments whereby, all taskes are to be performed on all hands, both by those that propose, and those that receive and entertaine Learning, are to be had in a readines and ordered for Use.

Concerning the Taskes what and when every thing is to be done.

Salomon tels us, that *There is a season to every thing, and a time to every purpose under the heaven; Eccles. c. 3. v. 1. and v. 11.* and that God hath made every thing beautifull and consequently, delightfull and acceptable, in its proper time. If then we can discern this time, and determine the work to be done in it we shall find successe in it, and that with ease.

In the first Period, from five till nine; an Order of taskes must be observed in the preparatorie School, as well as in the other following:

lowing. but now we shall not speak thereof, because we suppose that such a School cannot be had speedily ; and that we must take such Scholars at first as can be had ,till Schoolmasters be trained up who shall be able to follow the Directions which may be given for the training up of Children in such a Nursery.

In the second Period, from eight or nine, till thirteen or fourteen, we have five years, to bestow upon the Objects of Learning which are proper to that Age and Capacity , whereof the Perfection is nothing else but Memory. These five years shall be divided into three parts , whereof the first and second shall each comprehend two years ; and the third , one.

In the first part (that is in the two first years of this period) they shall be led through all the Objects of Fancy and Memory belonging to that Period in the Method; which shall be prescribed unto the Ushers : and to every thing which shall be shewed them by their Ushers ; the Latin and Greek names shall be added and commended unto their Remembrance. so that here, in these two first years they shall be obliged to runne over all the taskes of the whole period , to take up the Ideas thereof, and keep them in memory with their two Learned names only. And to that effect, in the first quarter of the first year, they shall be diligently exercised in writing the Latin

tin and Greek characters faire and readily; and in copying out some Pictures, and the Figures of Models of Things.

Then in the last quarter of that year, when they are stored with almost the half of the words of those two Tongues; the Rudiments of the Grammaticall Rules of both Tongues are to be taught them, so farre as to help them, to make use of their *Janua's* therin; which from that time forward they shall be made to ply diligently, till towards the end of the second year; then about the last quarter thereof, they shall be taught to write Hebrew faire and readily. and when they have attained to some perfection heerin, the Rudiments of the Hebrew Grammar also shall be taught them, so farre as it doth agree with that which they formerly learned of the Latin and Greek Grammars.

In the second part of this period (that is in the third and fourth years thereof) the same taskes which formerly were taken in hand and prosecuted shall be renewed by the same Method of leading them through all the Objects belonging to the whole period the second time, only with a twofold difference: first, that to the Latin and Greek names of Things which were formerly taught, and now are to be repeated, the Hebrew shall be added. Secondly, that in this second course of observa-
tion

tion they shall descend to some things more particularly in every Object, then they did in the first course; and in a way more exact and distinct: wherby they shall be taught to look upon every thing so, as to take up the notion thereof orderly in four things when they once have gotten the Generall shape thereof in their mindes. The First is, to look upon the parts thereof, and know their distinct names in the learned Tongues. The second is, to look upon the properties of those parts and the forme or frame of the whole arising from thence. The third is, to look upon the Action or Passion, or fitness to Action or Passion which ariseth from that frame and properties of the whole and parts. And the Fourth, is to look upon the usefulness which the thing, with the parts, properties and actions thereof, hath towards man. When every Object formerly observed in the bulk shall be thus reviewed in these particulars, and the chief names formerly not mentioned added therunto; the second course of this period will be also finished: whereof at this time, this only is further to be added; that, at the latter end of the third year, and the beginning of the fourth, the Grammaticall precepts are fully to be delivered in each Tongue in respect of their differentiaall properties, which thenceforth are to be taken notice of in the Use of their *Fanua's*. In

In the third and last part of this Period (that is in the fifth year thereof) they shall repeat all what in the four former years they have learned : but Chiefly the Additionall part of Learning, which the second Course had, more then the first ; that is, their Hebrew Janua; the particularities, to be taken notice of, in the Observation of all Sensuall objects, and the Grammaticall differences in the Constructions of the three Tongues.

In the third Period of Learning, from thirteen or fourteen, till nineteen or twentie ; we have six years to bestow upon the Traditionall and Rationall wayes of Teaching all Sciences : those years also shall be divided into three courses, and to each course two years shall be allotted.

In the first course of this third Period, all the Sciences belonging therunto are to be delivered Historically, which may be done three wayes. First, by way of ocular Demonstration in things that can be shewed unto Sense in every Science, whose subject hath any thing of Sense in it. secondly, by way of Schemes and Pictures to represent Hieroglyphically those things that have no visible shape ; and formally those things which have a reall shape, but are not at hand to be seen and shewed unto sense. And thirdly, by way of Narratives and Relations, expounding both that
which

which is shewed unto Sense, and that which is offered unto it in Pictures and Schemes, whether Hieroglyphically or Formally.

In this Course (besides their *Janua's* which are to be repeated) the easiest of the Latin and Greek Authors which handle the Sciences (whereof the Ideas have been offered unto them) are to be read by them according to the Directions which shall be given: and after the first year of this course (or sooner as upon triall shall be found expedient) their speech shall be wholly Latin; and to beginne to translate some remarkable passages of Greek Authors into Latin, and of Latin Authors into Greek; shall be one of their exercises.

In the last quarter of this course (or in the last half year as experience shall direct) the grounds of Logick shall be taught them so farre as to let them see. 1. What the faculty of Reason is in man, and wherein it doth differ from Imagination and Memory. 2. What the Use thereof is in all Sciences. 3. What the Acts thereof are, in making up many single thoughts into Propositions; and of many Propositions laid together to draw thence Consequences. 4. How that these Acts are to be taken notice of, and observed in the Authors which they have read who write of Sciences; in whom they shall be taught to Analyse some of their Rationall Propositions
and

and consequences. Thus the first course of this period shall be ended.

In the second course (that is, in the third and fourth year) of this Period, all the Sciences belonging to the whole Period shall be taught Dogmatically; that is, the Rules and Precepts thereof shall be delivered, according to that Order wherein they are subservient unto the Necessities of Man, and branch themselves out one upon another; the latter growing up from the Principles of the former; and all tending to make the Creatures serviceable unto Mankind; or to rectifie his disorders within himself. In this Dogmaticall course of Sciences, towards the latter end of the first year thereof (that is, in the last quarter of the third year of this period of Education) the Precepts of Logick shall be fully taught, first the Analyticall, and then the Geneticall way of Reasoning, to find out Truths which are doubtfull, and towards the latter end or the middle of the second year thereof, the Precepts of Oratory and Poetry shall be taught them; and they directed to observe in the Authors which they have already perused, how those Precepts have been put in Use by them, that they may learne to imitate their practise.

In the third course of this period, that is, in the two last years thereof; all the Sciences belonging to the period shall be taught Practically,

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Etically, that is they shall be exercised in the practise of all that which they have been taught, in the whole former Course of their education: and they shall be put upon the occasions of making Use of their skill in every Science for their own and others advantage, and the improvement of the wayes of learning: and here as their Genius shall lead them, they shall be left a little larger scope to follow it: either in wayes of Action, or of Theorie, or of Utterance: in the first year of this course they should be exercised and put upon the practise of all; but in the last year, according as their Faculty should be found most eminent (with some few Directions and Manuductions to Improve it) they should be suffered to apply it to the subject which amongst all the Sciences they should like best to exercise themselves in. And in the latter end of this year, that is, in the last quarter thereof, having received such Directions for the future Government of their life as will be found necessary to order it Judiciously and Prudently; they may be dismissed to take some Publick Service in hand; or follow some private Calling which the Commonwealth doth stand in need of.

And thus I have reckoned up the main and generall Taskes, as they are to answer the years; the subdivision thereof into

into moneths, weeks, dayes and hours will not be difficult; and needeth not now to be insisted upon, but must be delineated before we set upon the work it self. We come now to speake in brief of the way of proposing those Taskes unto the Scholars, and of their way of entertaining their thoughts about them.

Concerning the way of proposing all the parts of Learning unto the Scholars, and of their entertaining the same, to fixe their mindes thereon.

The way of proposing matters of learning is as considerable as any thing else in the work of Institution; and next unto that is the way of entertaining that which is proposed: the first of these is the proper work and industry, of the Governour and Ushers; the second, of the Scholars themselves, although the Ushers also may and ought to have some hand therein.

For the proposall of every thing, the Governour shall prepare the particular matters of every thing which shall be taught for every houre of the day, throughout the whole course; and deliver the same in writing Quarterly, or Monthly (at least) beforehand unto the Ushers; that they may be in full readines and perfectly exercise themselves in every thing which they shall deliver to their Scholars
and

and the Matters should be thus long predetermined before hand, and given to the Ushers, that if upon good grounds they shall suggest any thing to the Governour for an alteration of that, which he shall have prescribed; it may be in time considered between them, and ordered as need shall require, or found most expedient.

The Matters to be proposed being thus prepared, when the time comes to offer them to the Scholars; the Governour shall for every different kind of exercise and Institution give Directions unto the Ushers, how to behave themselves towards the Scholars, to make them affectionat towards the taske which is to be offered unto them, that is, attentive and greedy to receive it: and to make them more perfect in following the Directions and Rules which in this nature shall be given: he shall himself give them an example of the Practise of it towards the children; shewing them, at every change of exercise and different way of Institution, how they should go about their work: he shall therefore teach the first lesson of every kind himself in the presence of his Ushers, that they may observe his way: and at the second lesson, when they shall beginne their work; he shall be present at it, to observe them how they performe it, and tell them of their faults if any be committed.

Two

Two things are fundamentally to be heeded in the Manner of proposing every thing : First, that the Schollars before the thing be proposed be made sensible of the End, wherefore it is taught them, and they ought to learne it, viz: what the necessity, use, excellency and perfection thereof is in the life of Man &c. Secondly, that the way of offering it unto them be the same at once to all, by all alike perceptible, common, plain, distinct and orderly in every part. And to these two fundamentals, whereof the first relates unto the Will, the second, unto the Understanding; a third may be added relating to the Memory, which is, that in the Method of proposing every thing; this Rule be observed.

Let the Generall notion of every Object, or the shape of the whole; be first offered to the Imagination, and then the parts which are contained under it, to be represented unto the thought by way of Division. and this being done; Let the mind afterward be led retrograde to review the parts as they look to one another; and make up the whole by way of collection.

And at the conclusion of every lesson, a brief and summary Recapitulation of that which hath been offered unto them is to be proposed; and the Question should be asked whether any hath a doubt of anything? or would

would have something repeated; or further explained; that they should speak.

The way of entertaining that which shall be thus proposed is partly in the Scholars by themselves, partly in them together with their Ushers.

By themselves they shall entertain the things which have been taught them, by the exercises of writing, of painting, or drawing figures, of compendiating, and of methodizing, as they shall from time to time be directed; for the fixing of their thoughts upon that which they shall have received; and by the reading, and understanding, and translating of their *Fanua's*, or of their Authours from one Tongue to another, according to the way which shall be shewed them.

Now, as the proposall of a lesson shall not last above half an houre at the most; so the entertaining of that which hath been offered, shall follow immediately thereupon, for the space of another half houre, so that to every lesson, a full houre and no more shall be allotted; whereof the first part shall be spent in receiving, the second, in entertaining the thoughts thereof.

The entertainment of things received together with the Ushers, shall be two wayes.

1. By shewing the exercises wherewith they entertained their thoughts by themselves.

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2. By

2. By a constant course of Repetitions to be observed daily, weekly, monethly, quarterly and yearly; whereof particular Directions are to be given in due time: but the generall Rule of proportion in all Repetitions to be observed is this; that the third or fourth lesson, or period of lessons, is alwayes to be Repetitorie in some degree or other; more or lesse, as the matter is more or lesse difficult, and generally rather the third is to be made Repetitorie of two, then the fourth of three: but experience will best determine what is most expedient to be done in this.

Concerning the Means and Instruments which are to be had in a readinesse, and ordered for use, that these Tasks may thus be prosecuted on all hands.

THe things necessary to be made use of for bringing all this to passe, are 1. a convenient House fitted with rooms, wherein the Scholars may be at their exercises. 2. the schollasticall Furniture, & dressing of those rooms. 3. the Books and other Implements, which the Ushers and Scholars must have at hand.

The House, where this course of education should be intended, must not be within the City, but should be near unto it, in a good air, large and spacious; and as it were in the Countrey, with large gardens and orchards,
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near the places of tillage and of pasturage, that the Countrey may afford unto the Scholars the aspect and observation of all Naturall things, wherein they are to be taught, and the City may afford them the sight of all Artificiall things; of all Trades and Manufactures, wherewith they are to be made acquainted.

The Rooms wherein the Scholars should be at their exercises, should be foure: Three lesser ones, for each Usher and his peculiar Scholars one; and one large one; or rather a Gallery which should be for common Use unto all.

The Scholasticall furniture and dressing of these rooms, ought to be this.

The large common room ought to be furnished with all manner of Mathematicall, Naturall, Philosophicall, Historicall, Medicinall, Hieroglyphicall and other sort of pictures, maps, globes, instruments, models, engines, and whatsoever is an object of sense in reference to any Art or Science, these things are to be set in their order, according as they are subordinate unto severall Sciences; that at the times appointed, the Ushers may leade their Scholars into it; to receive the lessons which they shall give them; upon the ocular inspection of the Things, which shall be shewed unto them.

The lesser rooms each ought to be furnish-

ed with a high seat for the Usher; that he may overlook all his Scholars, and with twentie distinct places, so ordered for the Scholars to sit or stand in; that their faces may be all towards him: and each in his place may have his own desk, to keep all his papers and other things to be used in good order. In each of those rooms there should be an iron furnace or stove to keep it warm in the winter.

The Books which the Scholars shall have in the School shall be none but such as their Usher shall put in their hands. In the second Period of Institution, they shall have no books but their Latine, Greek and Hebrew *Janua's*, and the Bible of the Old and New Testament in these Tongues, and in their Mother-tongue. In the third Period, besides these books, they shall have from time to time, such as their Usher by the Governours direction shall furnish them withall, and none other; nor any longer then he thinks fit.

The Instruments besides pen, ink and paper, shall be a pen or stick with black lead; a pen-knife, a pair of compasses, a ruler, a slate; and some other implements which from time to time shall be put in their hands, and taught to make use of according to the degrees of their proficiency.

Of Teaching LOGICK.

BY Logick I understand the Art or skill, to make right use of our reasoning Facultie. The facultie of Reason in man, is that abilitie, by which he can set his thoughts in order to judge of all things, which are in his Imaginations.

As large then as the Imagination or Fancy of Man is, so large is the use of Reason; that is to say, it doth reach unto all things, that can be thought upon, for all the thoughts of the heart of Man are contained under this notion of Imaginations; whether they have an Idea or not expressly formed in the mind; for some thoughts are negative to all Ideas. By an Idea I mean the shape and representation of something which the mind doth frame unto it self by the Imaginative Facultie: for, the imaginative Facultie is like a looking-glasse, which being turned to any object whatsoever doth receive the shape thereof, and represents it to the eye of the Understanding: If then the understanding Facultie doth look upon the shapes of things, which are in the Imagination not confusedly, but in an orderly way; to compare them and lay them together for some purpose and aim, for which they are taken in-

to consideration ; then it is said to proceed rationally ; but if it hath either no aim at all, or no command of its own thoughts or skill to rule and order them to that aim, which it doth consider them for: then it doth proceed without Reason. Now because to man, the Facultie of Reasoning is that universall Light, by which he is to guide his wayes in all particular objects as well of Meditation, as of Action; therefore if this Light be darkened in him, then all is nothing but darknesse: but if the eye of his Reason be clear, then all is full of Light, which he doth undertake to Act or Meditate. For this cause the Art of Reasoning as to Man, is the chief of all other Arts and Sciences in humane things; for by it all other Arts are found out; and whatsoever is amiss in them may be rectified: and consequently to teach how to make use of that Reasoning Facultie, which we have to some good purpose, is in all humane things, the matter of greatest importance that can be thought: and yet such is the miserie of our life, that there is scarce any thing lesse minded; or when minded, lesse taught in a right and profitable way. I shall not at this time intend to make this charge good against the ordinary Teachers of Logick, who for the most part, are so farre out of the way of right Reasoning, that their very precepts are lesse
then

then rationally, and they themselves incapable of better Rules, till they be wholly untaught that which they have learned. But I shall (as briefly as may be, to be well understood) deliver my conceptions of the right way of teaching young Scholars the Art of Reasoning by a Positive Method to direct them in it, that intend to teach others. I will suppose then, that a young Scholar is brought unto me, who is *in puris Naturalibus* (as we use to say) that is, who is capable of institution in this kind, as being no wayes prepossessed with any habits, which may make him unfit to receive the documents which are to be given him: and as being onely possessed with the common Notions of Naturall things which are the objects of humane Senses; and understanding no more, but the proper sense of all the words of the Language, by which the Notions are expressed in the common speech wherein he is to be taught. To such a young man I first would deliver some common Precognitions concerning Logick, and afterward would exercise his Reasoning Facultie in the way of Meditation whereof I should find him capable, growing upon him by degrees, till I should make him master of the use of all his thoughts, to all purposes, which he should apply them unto.

The Precognitions should bring him to consider himself.

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I. That

1. That he hath a Naturall abilitie to think and meditate, as all other men have.

2. That men of understanding are distinguished from fools by this, that they can make use of this Abilitie understandingly: that is to say, that they understand themselves what they do think and meditate, in what order and to what purpose.

3. That therefore there is some way to order and direct the thoughts of the mind: that they may not wander at random as fools thoughts use to do.

4. That this way to order and direct our thoughts, being taught and delivered by certain Precepts is called the Art of Reasoning or Logick: and that he who is exercised to follow the same is a Rationall man or good Logician.

5. That of all other studies, this is the most worthy of a Man, most profitable and most necessary to attain to the happinesse of this life, so farre as by humane faculties it is attainable: and therefore, with most earnest Affections and desires to be attended unto.

Having by such Preparations as these are, fitted his Understanding and raised his Affections to docilitie and attention; I would begin to deliver unto him some Precepts concerning the use of his first Notions, and single thoughts, to teach him to take notice of them

them, what they are : not reflexively by the Term of a second Notion (as the ordinary Logicians do , teaching their Scholars to speak they know not what, nor to what use) but directly in the Terms of a single Proposition, to cause him to take notice of the Subject and Prædicat thereof , and of the connexion of each to other in a way Affirmative and Negative : shewing him that every word in our common speech, doth stand for a single thought or Notion of the Mind , and that the words which we speak, should in their order and coherence expresse the order and coherence of our thoughts.

Having then shewed him what a single Proposition is , what parts it is made up of; How these Parts are set together in our thoughts : what the Differences of single Notions are ; and of the wayes of their setting together to make a Proposition of them; and how a single Proposition doth differ from a compound : How a compound is made up of two, three or more single ones : and what the wayes of composition are, and their differences; and consequently , How many sorts of Compound Propositions there are in our Notions to make up a Period of speech : having, I say, shewed him all this, not *in abstracto* and Notionally , but by an Example of every kind , and *in concreto* , as it were sensibly.

7 sibly in the Period of some discourse laid open to his thoughts, and analysed before him; that they may be as it were led by the hand to consider of it; then I would set him a dayly task of new Examples which he should be obliged to take into his consideration, to Resolve Analytically by himself according to these Precepts, which I should have given him concerning single and compound Notions and Propositions; to the end that by this exercise of his thoughts in Resolving the ordinary Periodicall Discourses of Rationall men into these Parts and Particles of Parts whereunto they are Rationally Resoluble: he may be accustomed to observe what use men make of their Notions single and compound; to the extent of one Period of their Discourses: Now whether the Notions which he is exercised in be materially Rationall or no; is not at all materiall to his Instruction, because in this first degree of Precepts, he is onely taught to take notice of the Difference of Notions, and of the frames wherein they are set together, in the expressions which rationally men use or may be used, but whether they be rightly used in this place, and in respect of such and such matter yea or no, that is not to be the object of his consideration at this time, that is to be taught afterward in due time.

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This being done I would proceed with him to the second degree of Precepts, which should direct him to understand the use of his thoughts in matter of Consequence, when one Proposition is drawn out of another and becomes a conclusion arising from it. Here I would let him know what a Consequence is, How many wayes Consequences may be inferred from premises, and what the Principles are, from which Consequences are raised, and by which they are to be tryed, and may be made Conclusions. In this part of the Doctrine as in the former, I would shew him by examples of every kind, how men of understanding make use of their thoughts, analysing their discourses wherein such Acts of Reasoning are expressed, whereof he should have received Precepts; and then according to the pattern of Meditation, which I should have given him in this kind, I would oblige him to exercise himself by certain discourses containing Principles and Consequences drawn from them in some Authours, which he should be put to resolve, as to the matter of Consequentiall Inferences, and the Acts of drawing Conclusions from Premises to observe; how these that use to discourse rationally do order their thoughts and expresse the same to the capacitie of others.

Then the Scholar whom I should have taught

taught these things, should in the third place be directed to take notice of the Acts of Reason, which are employed about the Apprehension of Arguments, and the relation of one thing to another by the Notion of an Argument. Here then he should be taught what an Argument is, How many different sorts of Arguments there are in the use of Reason to be laid hold on; what their different Relations are, and force of arguing, towards that whereof they are conceived to be Arguments. This also should be laid open to him by Precept and Example, and Practically in the Analysis of some Discourse; or parcels of Discourse in an Authour shewed: How these that are most rationall make use of those Arguments in their Discourses; and when he hath been taught to observe these acts of Reason in an Authour, he should be put as at former times to analytically Tasks to resolve the matter of some discourse into the severall Arguments which it containeth, as they stand singly by themselves, whereby he should be able upon examination to tell me where his Authour maketh use of an Argument taken from the Cause, or from the Effect, or from the Subject, or Adjunct, or the whole or the part, or contrary or similitude, &c. and when he should be complete in this kind of Exercise, then he should be brought

to the fourth and last degree of Analyticall Doctrinē, which is to learn to consider the whole Body of a discourse, and to observe all the Acts of Reason, which a man of understanding doth make use of therein. Here then he is to be taught what a Rationall Discourse is, what is to be observed in it. *viz.* the Subject whereof it speaketh: the Scope and Purpose whereto it speaketh; the Parts whereof it is made up; their Coherence and Distinction, as well in respect of the main Body, as of every particular member of this Discourse, and the order of every thing contained in it, with a reference to the matter and scope, that the whole wisdom of the Authour may be discovered. And to instruct him to observe all this in an Authour I would Analyse a Discourse to shew him, How he should proceed in ordering his thoughts to reflect upon all these things in his Authour; and having both by Precept and Example shewed him what he ought to do: I would give him a task to exercise his mind to do the like, and wherein he should fail, I would rectifie him till he should be complete in this Act, and use of his Reason also.

All this being done by these degrees of Analyticall Doctrinē, and as it were experimental manuduction of his thoughts to the

the Practise and use of Reason; I would then bring him to exercise his Reason Genetically, that is by a way of begetting and producing Notions within himself concerning a Subject which should be given him to Meditate on Rationally. Here then he should be taught what the Difference and use is of Analysis and Genesis: *viz.* that by the exercise of the former we reflect upon the Acts of other mens Reasoning, and by the exercise of the latter we stirre up our own Facultie to make use of it, to produce Acts answerable to the Rules which we have been taught. And to make him complete in this way also, First the Precepts belonging to the way are to be delivered, and then an Example of those Precepts is to be given, and according to these Precepts and Example he is to be exercised, first to meditate upon a simple *thema*. (as they call it) Genetically, and then upon a compound *thema*. By a *thema* is meant a Matter of Meditation, which is either a single Notion or a Proposition, either simple or compound: of which things it is needlesse now to speak at large. The summe of all is this: that the Right use of Reason is to be taught first in the Practise, before it be taught in the Theorie, and the Analyticall way of Practice is to go before the Geneticall, and in this teaching the severall

verall degrees of every Practice are to be observed, and in every degree, whether the Precepts directing the to mind observe the Rules of Practice, go before the Example which the Teacher is to propose; or whether they follow the same as observations, to cause the mind reflect upon the things to be imitated in the example, or whether some Precepts be given by way of *Præcognita* before, or some by way of observation after the example; it is not greatly materiall: if they never be separate, but go in their own degree of exercise together, the one always giving light to the other, and both fitted by the Prudencie of the Teacher to the capacitie of the Scholar. And when the use of Reason hath been thus fully taught in a Practicall way; then the Scientificall and Notionall Precepts thereof are to be delivered reflexively upon the Rules of Practice, which have been fully conceived. For the direct knowledge must be proposed before the reflex be offered, because none can reflect upon his way of knowing before he hath attained it; therefore the way of knowing Actually must be experimentally proposed, before the Theoreticall way of apprehending matters be reflexively taught; which is quite opposite to the Practice of those that teach Logick in an ordinary way: who deliver all
even

even to Children Reflexively and Scientifically : before they exercise them in any point of Practice , except in that of a confused, endlesse, unprofitable way of disputing about Notions which is falsly called Logick , by
➤ which means those that should be made Scholars of Right Reason , are made habitually wranglers about the Terms of an Art, which they never have been taught : and in stead of making use of their Rationall Facultie, to set it in a way to order their Imaginations aright, they are onely directed and exercised to subtilize their Imaginations, and pride themselves in this mainly to have such conceptions, as
➤ are beyond the vulgar Capacitie. As if to speak things in the air and out of the common use were to be Rationall : but of the originall of these Abuses, of the way, How men should be convicted of them and the means, How to rectifie them : and of the more speciall method of teaching the True Art of Reasoning in all the degrees and Parts of the Practice and Theorie thereof; I hope I shall at another time be able to speak more fully , when God shall give me better leisure without distraction to elaborate such tasks as in this and other Kinds lie upon my hand. In the mean while, take this as a taste of what may follow in due time ; both for the Illustration of this
way

way by examples, and for the more particular deduction of every thing belonging thereunto. I rest upon all occasions of service in this or any other kind,

Your affectionate and Loving

Friend and Servant in Christ

JOHN DURY.






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A COPY
of
M^r JOHN DURY'S
Letter to
SAMUEL HARTLIB.

Dear Friend,

 *Am glad that the Directory for the Education of Children, and teaching of Sciences is to your liking; I would be more glad if God would open it a way for us to put in practice: and although nothing should be done therein by our selves in these distracted times; yet it may be a satisfaction to our minds, that we have not been wanting to our generation, so farre as God hath enabled us to trace the wayes of doing service to the publick; and that we have not buried our talents in the ground, when opportunities have been offered*

offered to us to employ them. You have told me once or twice at severall occasions, that the Discourses which Dr Kinner hath sent you from beyond Seas tend wholly to the same Scope which I have proposed to my self in the Directory which I have sent you; and that my Conceptions are as it were an Abridgement of that which he hath written to you; as if I had read his contrivement of matters; and taken the cream of his whole counsell. It is very possible that men of the same Judgement and Principles, setting themselves to order one and the same work, though they never have conferred notions, may agree upon one and the same way: I am glad that my thoughts and his, though neither of us have had the perusall of one anothers papers, or any communication with each other about that subject, do so concur, as to confirm you in the way which is most satisfactory to your judgement:

judgement: you may say then to the world; that you have two witnesses to one and the same Truth, and way of Righteousnes; and that Gods Spirit, and right Reason speaks the same thing in all men; in all the parts of the world.

I shall be glad at a convenient time, to see those papers, whereof you say I have already given you the substance before I ever saw them: for I suppose they will not onely adde to my thoughts upon that Subject; but perhaps give me occasion to adde something to him for the accomplishment of your desires, and the benefit of the Publick, whereunto you know I have dedicated my self; and therein by Gods grace shall persevere unto the end: I rest,

Your most affectionate and
faithfull Servant in Christ,

JOHN DURY.

FINIS.

THE
REFORMED
LIBRARIEKEEPER

With a Supplement to the
Reformed-School,
As-subordinate to Colleges in
Universities.

BY
JOHN DURIE.

Whereunto is added

- I. An Idea of *Mathematicks*.
 - II. The description of one of the chiefest
Libraries which is in *Germanie*, erected
and ordered by one of the most Learned
Princes in *Europe*.
-

L O N D O N,
Printed by *William Du-Gard*, and are
to bee sold by *Rob. Littleberrie* at the
sign of the *Unicorn* in Little
Britain, 1650.



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To the Reader.

Learned Reader!

THese Tracts are the fruits of some of my Solicitations and Negotiations for the advancement of Learning. And I hope they may in time become somewhat effectual to raise thy Spirit to the expectation of greater things, which may be raised upon such grounds as these. All which are but preparatives towards that perfection which we may expect by the advancement of the Kingdom of Christ, wherein the Communion of Saints, by the graces of the Spirit, will swallow up all these poor Rudiments

*of knowledg, which wee now grope
after by so manie helps ; and till
then in those endeavors I rest in the
Truth*

Thy faithfull and

unwearied servant

SAMUEL HARTLIB.



A
SUPPLEMENT
 TO THE
Reformed School.

Loving freind!



You have offered to mee that which I confess I did not reflect upon, when I wrote the discours you have Published under the name of a *Reformed School*; which is, that som may think by the waie of Education, which I propose all Universities and eminent places of Learning might subtilly bee undermined and made useles, becaus therein a waie is shew'd how to initiate youths not onely to the Principles of all Religious and Rational knowledg, and in the Exercises of all Moral virtues, but in the grounds of all Civil employments, so far, as will make them fit for all profitable undertakings in humane societies, whence this will follow (in their apprehensions) that they shall have no ad-

vantage by beeing sent to anie Universities, to attein anie further perfection: becauf the Universities will not bee able to add anie thing unto them, which by their own Industrie, they may not afterward attein anie where elf, as well as there. Truly it never came into my thoughts, either directly or indirectly to make Universities uselefs; nor can it bee rationally infer'd from anie thing in the matter form or end of that discours of mine: but I will grant that such as can see no further then what wee now ordinarily attein unto; and withal think that there is no *Plus ultra* in nature atteinable above that which they have conceived, such as I saie may frame to themself's this jealousie against that discours: but if they would raif their thoughts with mee a little above the ordinarie pitch, and consider what the Nature of man is capable off: and how far it may, by diligent instruction, by Method and Communication, bee improved: they might rather bee induced to make this inference, if the natural abilities of youths in a School (when reformed) may bee thus far improved: how far more may they bee improved, when they are past the age of Youth, and com to Manhood in Colleges and Universities, if namely Colleges and Universities, could in the sphere of their activities

activities bee proportionally Reformed, as the Schools may bee in their sphere: for it is rational to conclude thus: if the first step of our Reformation will lead us thus far, how far will the second and third lead us? and if Scholastical Exercises in Youths of eighteen or twentie years, will advance them to that perfection of Learning and Virtues, which few of double their age or none almost ever attein unto, what will Collegial and Academical Exercises (if reformed and set upon their proper Objects) bring them unto? I shall therefore to ease you, or such as may have this scruple and jealousy over mee, declare that my purpose is so far from making Colleges and Universities useles, that if I might have my desire in them, they should become a thousand times more useful then now they are, that is, as far above the ordinarie State wherein they are set, as this School is above the ordinarie waie of Schooling: for if wee look upon the true and proper ends of School, College and Universitie-studies and Exercises; wee shall see that as in nature they are in a gradual proportion, distant from, and subordinate unto each other, so they ought to rise one out of another, and bee built upon each other's Foundations.

The true and proper end of Schooling is to teach and Exercise Children and Youths in the Grounds of all Learning and Virtues, so far as either their capacitie in that age will suffer them to com, or is requisite to apprehend the principles of useful matters, by which they may bee made able to exercise themselvs in everie good Employment afterwards by themselvs, and as the Proverb is, *sine Cortice natare*. The true and proper end of Colleges should bee to bring together into one Societie such as are able thus to Exercise themselvs in anie or all kind of Studies, that by their mutual Association, Communication, and Assistance in Reading, Meditating and conferring about profitable matters, they may not onely perfit their own Abilities, but advance the superstructures of all Learning to that perfection, which by such means is attainable. And the true and proper End of Universities, should bee to publish unto the World the Matters, which formerly have not been published; to discover the Errors and hurtfulness of things mistaken for Truths; and to supplie the defects and *desiderata*, which may bee servicable to all sorts of Professions.

Now according to those aimes and ends, I suppose it may bee inferred, that none should

should bee dismissed out of the Schools, till they are able to make use of all sorts of Books, and direct themselvs profitably in euerie courf of Studie or Action, whereunto their *Genius* shall lead them; and that none should bee admitted into anie Colleges, but such as will join with others, to elaborate som profitable Tasks, for the Advancement and facilitating of superstructures in things already by som discovered, but not made common unto all ; And that none should bee made Publick Professors in Universities, but such as have not onely a Publick aim, but som approved Abilities, to supply for defects and to Elaborate som *desiderata* of usefull knowledg, or to direct such as are studious, how to order their thoughts in all Matters of search and Meditation, for the discoverie of things not hitherto found out by others ; but which in probabilitie may bee found out by rational searching.

Thus then I conceiv, that in a well-Reformed Common wealth, which is to bee subordinate unto the Kingdom of Jesus Christ, wherein the Glorie of God, the happiness of the nature of man: and the Glorious libertie of the Sons of God is to bee revealed ; all the subjects thereof should in their Youth bee trained up in som Schools

fit for their capacities, and that over these Schools, som Overseers should bee appointed to look to the courf of their Education, to see that none should bee left destitute of. som benefit of virtuous breeding, according to the severall kinds of employments, whereunto they may bee found most fit and inclinable, whether it bee to bear som civil Office in the Common-wealth, or to bee Mechanically employed, or to bee bred to teach others humane Sciences, or to bee imploied in Prophetical Exercises. As for this School, which at this time I have delineated, it is proper to such of the Nobilitie, Gentry and better sort of Citizens, which are fit to bee made capable to bear Offices in the Common-wealth: the other Schools may bee spoken off in due time, so far as they are distinct from this; but that which now I have to suggest is chiefly this, that as out of the Schools the choise, which ought to bee made for Colleges, ought, *Ceteris paribus*, onely to bee of such as are most fit to Advance the Ends of a Collegial Association; so out of Colleges a choise ought to bee made of Professors for the Universitie onely, of such as are fittest to advance the Ends of Publick teaching in Unlversities, which are not to Repeat and Compendiate that which others have published.

Reformed School.

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lished twentie times already, over and over again, but to add unto the Common stock of humane knowledg, that which others have not observed, to the end that all these degrees of Studies and Exercises of the minde of man, beeing subordinate unto the Kingdom of Jesus Christ, the happiness of Man by all Rational and Spiritual waies of improving humane Abilities, may bee advanced unto it's perfection in this life so far as may bee.

But how far short wee com now of all these designs, I need not to relate unto you: the Colleges as they are now Constituted, can scarce reach to the half of that which the Schools might bring us unto: and the Professors of the Universities com not up to that, which the Collegial Associations might elaborate, if they were rightly directed to set their Talents a work; and if the publick Spirit of Christian love and ingenuitie did possess those, that are possessed of publick places in the Colleges of the Universities. For if this Spirit did rule their Aims and Endavors, there would bee no self-seeking, no partialitie, no envie, nor anie cross actions for private ends, to the prejudice of the Publick; but the generous love of virtue and of profitable Learning, would swaie all their inclinations to a free conjunction; and

and make all their endeavors subordinate unto the publick good of the Commonwealth of Israel in the Communion of Saints. But how far this Principle of acting is now wanting amongst us all, I shall not need to mention: you have considered it long ago, and wee have together lamented that defect, and the doleful effects thereof: our endeavor must bee to seek out the best means of a Reformation therein, and to make use of them as God shall give us opportunities. And truly something of this kinde might bee don, without anie great alteration or stir, even as matters now are formed in the Colleges; if God would bee so gracious to us, as to beget in the mindes of those that understand those things, a heartie Aim and Resolution to benefit the Christian Commonwealth of Learning, by their Collegial Relations and Associations one to another. For if men that are ingenuous will call to mind the end first, for which God doth give them all their Talents, and then also for which men of publick Spirits have erected Colleges and Universities, and endowed the same with long and competent maintenances; that such as are fit for Studies, and called to bee Instrumental in the propagation of Truth and Virtue, might not bee distracted with the care of the World,

World, in reference to outward matters, but might have all the conveniences which are imaginable to improve those Talents to the utmost, either singly or conveniently with others, if (I saie) ingenuous Christians would minde these ends, for which the benefit of their Talents from God and of their accommodations from men to improve those Talents are bestowed upon them: it would not bee possible for them; to bee so unthankful towards God, and averf from the rule of Christianitie, and from the love of doing good to the generation wherein they live; that they should intend to lead a Collegial life onely for their own private eas and conveniencie in outward things; that beeing accommodated with all necessarie helps of the Bodie, they may pleas themselvs onely in the cours of their Studies, with that Reservation and Retiredness, which is proper to a Monkish life in Popish Cloisters; wherein the Spirit of Mutual envie, of detraction and division is more irreconcilably entertained, then in anie other Societies of the World. For their Cloister-constitutions, obliging them onely to the observation of som formal works as an *opus operatum*; for which their maintenance is allowed them; they not knowing anie further design of their life,

OF

or any greater happiness in this World, then to pleas themselves ; bestow all the rest of their time and thoughts, as their natural inclinations lead them, which is commonly to nothing elf but to self-love and Pride, which became a Provocation unto others, to discover mutually their corruptions, which by reaction make them all full of envie, of hatred, of evil surmises, and of malicious practices one against another : so that no where Satan doth dwel and rule more effectually, then in those Religious Houses, as they are falsly so called. How much of this Monkish disposition doth remain as yet in the formal Constitutions of Colleges, or in the Spirits of those that partake of Collegial accommodations, is not a thing which I shall take upon me to Judg ; but I shall leav it to God, and to his daie to discover ; onely I would bee glad that all such as are true Israelites, and know the end of their calling unto Christ, and are not willing to burie their Talents, or to make them useles unto others, for whose sake they have received them would laie this matter to heart, that their Aim in a Collegial life, should not bee to enioie an easie careless waie of subsistence by and for themselves, to follow private fancies in their Studies about matters of Learning ;
but :

but that they should minde the stewardship of their gifts and places, and the advantages of their Association, whereby they might bee, (if they would make use of it) able to elaborate som tasks, which otherwise cannot bee brought to anie perfection, for the building up of the Citie of God in our generations. There is no want of parts and abilities in the Spirits of our men, but the waie to order them for publick Use, and to bring them together as stones fitly compacted to make up a perfect Palace, is that which make's us all useles one to another ; wee finde that now and then, as it were by chance, som exquisite pieces of Learning, which som have been hatching all their life time drop out; wherein appear's, besides the usefulness of the Subject, or the uselesness thereof, som inclination to bee found extraordinary; but these endeavors, disjointed from publick Aims, advance little or nothing, the Happiness, which true Learning rightly ordered in all the parts thereof, and Subordinate unto Christianitie, is able to bring unto Mankind. Such pieces therefore serv onely as a witness, to shew what wast there is of profitable time and abilities, for want of loving combinations for publick Designs. It is the observation of Forreigners concerning our Universities, that

12 *A Supplement to the &c.*

> that they finde in them men of as great learning as any where elf; but that they lie as it were dead and unknown to the whole world of other men of Learning; becauf they delight to live a retired and unfociable life: this humor therefore amongst other parts of our Reformation, must by som Gospel-principles and Rational inducements bee Reformed; not onely in Colleges but in other Associations. The Lord teach us the waie of Truth and Righteousness, that wee may profit in all things to advance the glorie of his name in the Kingdom of his Son, in whom I rest

Your friend and servant.

J. D.

THE
REFORMED
LIBRARIE-
KEEPER.

BY
JOHN DURIE.



L O N D O N,
Printed by *William Du-gard*,
Anno Dom. 1650.



THE
Reformed Librarie-Keeper :

OR

Two copies of Letters concerning
 the Place and Office of a Librarie-
 Keeper.

The first Letter.



He Librarie-Keeper's place and Office, in most Countries (as most other Places and Offices both in Churches and Universities) are lookt upon, as Places of profit and gain, and so accordingly sought after and valued in that regard ; and not in regard of the service, which is to bee don by them unto the Common-wealth of Israël, for the advancement of Pietie and Learning ; for the most part, men look after the maintenance, and livelihood settled upon their Places, more then upon the end and usefulness of their employments ; they seek themselves and not the Publick therein, and so they subordinate all the advantages of their places, to purchase :

purchase mainly two things thereby *viz.* an easie subsistence ; and som credit in comparison of others ; nor is the last much regarded, if the first may bee had ; except it bee in cases of strife and debate, wherein men are over-heated : for then indeed som will stand upon the point of Honor, to the hazard of their temporal profits : but to speak in particular of Librarie-Keepers, in most Universities that I know ; nay indeed in all, their places are but Mercenarie, and their employment of little or no use further, then to look to the Books committed to their custodie, that they may not bee lost ; or embezeled by those that use them : and this is all.

I have been informed, that in Oxford (where the most famous Librarie now exstant amongst the Protestant-Christians is kept,) the settled maintenance of the Librarie-keeper is not above fiftie or sixtie pound *per annum*; but that it is accidentally, *vis & modis* somtimes worth an hundred pound: what the accidents are, and the waies by which they com, I have not been curious to search after; but I have thought, that if the proper employments of Librarie-keepers were taken into consideration as they are, or may bee made useful to the advancement of Learning ; and were ordered

dered and mainteined proportionally to the ends, which ought to bee intended thereby; they would bee of exceeding great use to all sorts of Scholars, and have an universal influence upon all the parts of Learning, to produce and propagate the same unto perfection. For if Librarie-keepers did understand themselves in the nature of their work, and would make themselves, as they ought to bee, useful in their places in a publick waie; they ought to become Agents for the advancement of universal Learning: and to this effect I could wish, that their places might not bee made, as everie where they are, Mercenarie, but rather Honorarie; and that with the competent allowance of two hundred pounds a year; som employments should bee put upon them further then a bare keeping of the Books. It is true that a fair Librarie, is not onely an ornament and credit to the place vwhere it is; but an useful commoditie by it self to the publick; yet in effect it is no more then a dead Bodie as novv it is constituted, in comparison of vwhat it might bee, if it vvere animated vwith a publick Spirit to keep and use it, and ordered as it might bee for publick service. For if such an allowance vvere settled upon the employment
as

as might maintain a man of parts and generous thoughts, then a condition might bee annexed to the bestowing of the Place; that none should bee called thereunto but such as had approved themselves zealous and profitable in som publick waies of Learning to advance the same, or that should bee bound to certain tasks to bee prosecuted towards that end, whereof a List might bee made, and the waie to trie their Abilities in prosecuting the same should bee described, least in after times, unprofitable men creep into the place, to frustrate the publick of the benefit intended by the Doners towards posteritie. The proper charge then of the Honorable Librarie-Keeper in an Universitie should bee thought upon, and the end of that Imploiment, in my conception, is to keep the publick stock of Learning, which is in Books and Manuscripts to increas it, and to propose it to others in the waie which may bee most useful unto all; his work then is to bee a Factor and Trader for helps to Learning, and a Treasurer to keep them, and a dispenser to applie them to use, or to see them well used, or at least not abused; And to do all this, First a *Catalogue*, of the Tresurie committed unto his charge is to bee made, that is all the Books and Manuscripts, according to the
Titles

Titles whereunto they belong, are to bee ranked in an order most easie and obvious to bee found, which I think is that of Sciences and Languages ; when first all the Books are divided into their *subjectam materiam* whereof they Treat, and then everie kinde of matter subdivided into their severall Languages : And as the Catalogue should bee so made, that it may alwaies bee augmented as the stock doth increas ; so the place in the Librarie must bee left open for the increas of the number of Books in their proper Seats, and in the Printed Catalogue, a Reference is to bee made to the place where the Books are to bee found in their Shelves or repositories. When the stock is thus known and fitted to bee exposed to the view of the Learned World, Then the waie of Trading with it, both at home and abroad, is to bee laid to heart both for the increas of the stock, and for the improvement of it to use. For the increas of the stock both at home and abroad , correspondencie should bee held with those that are eminent in everie Science, to Trade with them for their profit, that what they want and wee have, they may receiv upon condition, that what they have and wee want, they should impart in that facultie wherein their eminencie doth lie ;

lie; As for such as are at home eminent in anie kinde, becaus they may com by Native right to have use of the Librarie-Treasure, they are to bee Traded vvithal in another *maner*, viz. that the things vvhich are gained from abroad, vvhich as yet are not made common, and put to publick use should bee promised and imparted to them for the increas of their private stock of knowledg, to the end that what they have peculiar, may also bee given in for a requital, so that the particularities of gifts at home and abroad, are to meet as in a Center in the hand of the Librarie-keeper, and hee is to Trade with the one by the other, to cauf them to multiplie the publick stock, whereof hee is a Treasurer and Factor.

Thus hee should Trade with those that are at home and abroad out of the Univerfirie, and with those that are within the Univerfirie, hee should have acquaintance to know all that are of anie parts, and how their vein of Learning doth lie, to supplie helps unto them in their faculties from without and from within the Nation, to put them upon the keeping of correspondencie vvith men of their ovn strain, for the beating out of matters not yet elaborated in Sciences; so that they may bee as his Assistants and subordinate Factors in his Trade

Trade and in their own for gaining of knowledg : Now becaus in all publick Agencies, it is fit that som inspection should bee had over those that are intrusted therewith, therefore in this Factorie and Trade for the increas of Learning, som tie should bee upon those Librarie-keepers to oblige them to carefulness.

I would then upon this account, have an Order made that once in the year, the Librarie-keeper should bee bound to give an account of his Trading, and of his Profit in his Trade (as in all humane Trades Factors ought, and use to do to their principals at least once a year) and to this effect I would have it ordered, that the chief Doctors of each facultie of the Univerfitie, should meet at a Convenient time in a week of the year, to receiv the Accounts of his Trading, that hee may shew them wherein the stock of Learning hath been increased, for that year's space; and then hee is to produce the particulars which hee hath gained from abroad, and laie them before them all, that everie one in his own facultie may declare in the presence of others, that which hee thinketh fit to bee added to the publick stock, and made common by the Catalogue of Additionals, which everie year within the Univerfities is to bee published in writing
B within

within the Librarie it self, and everie three years (or sooner as the number of Additionals may bee great, or later, if it bee smal)
7 bee put in Print and made common to those that are abroad. And at this giving up of the accounts, as the Doctors are to declare what they think worthie to bee added to the common stock of Learning, each in their Facultie ; so I would have them see what the Charges and Pains are whereat the Librarie-Keeper hath been, that for his encouragement, the extraordinarie expences in correspondencies and transcriptions for the publick good, may bee allowed him out of som Revenues, which should bee set a part to that effect, and disposed of according to their joint-consent and judgment in that matter. Here then hee should bee bound to shew them the Lists of his correspondents, the Letters from them in Answer to his, and the reckoning of his extraordinarie expence should bee allowed him in that which hee is indebted, or hath freely laid out to procure Rarities into the stock of Learning. And becaus I understand that all the Book-Printers or Stationars of the Common-wealth are bound of everie Book which is Printed, to send a Copie into the Universtitie Librarie ; and it is impossible for one man to read all the Books in all Faculties,

Faculties, to judg of them what worth there is in them; nor hath everie one Abilitie to judg of all kinde of Sciences what everie Autor doth handle, and how sufficiently; therefore I would have at this time of giving accounts, the Librarie-keeper also bound to produce the Catalogue of all the Books sent unto the Universitie's Librarie by the Stationars that Printed them; to the end that everie one of the Doctors in their own Faculties should declare, whether or no they should bee added, and where they should bee placed in the Catalogue of Additional; For I do not think that all Books and Treaties which in this age are Printed in all kindes, should bee inserted into the Catalogue, and added to the stock of the Librarie, discretion must bee used and confusion avoided, and a courf taken to distinguish that which is profitable, from that which is useles; and according to the verdict of that Societie, the usefulness of Books for the publick is to bee determined; yet becaus there is seldom anie Books wherein there is not something useful, and Books freely given are not to bee cast away, but may bee kept, therefore I would have a peculiar place appointed for such Books as shall bee laid aside to keep them in, and a Catalogue of their Titles

made Alphabetically in reference to the Autor's name, with a note of distinction to shew the Science to which they are to bee referred. These thoughts com thus suddenly into my head, which in due time may bee more fully described, if need bee, chiefly if, upon the ground of this account, som competencie should bee found out and allowed to maintein such charges as will bee requisite, towards the advancement of the Publick good of Learning after this manner.

The



The second Letter.

Sir!

IN my last I gave you som incident thoughts, concerning the improvement of an Honorarie Librarie-keeper's-place, to shew the true end and use thereof, and how the keepers thereof should bee regulated in the Trade, which hee is to drive for the Advancement of Learning, and encouraged by a competent maintenance, and supported in extraordinarie expences for the same. Now I wish that som men of publick Spirits and lovers of Learning, might bee made acquainted with the Action, upon such grounds as were then briefly suggested; who know's but that in time something might bee offered to the Trustees of the Nation, with better conceptions then these I have suggested.

For, if it bee considered that amongst manie Eminencies of this Nation, the Librarie of Oxford is one of the most considerable for the advancement of Learning, if rightly improved and Traded withal for the good of Scholars at home and abroad; If this (I saie) bee rightly considered and

represented to the publick Reformers of this age, that by this means this Nation as in other things, so especially for Pietie and Learning, and by the advancement of both, may now bee made more glorious then anie other in the world ; No doubt such as in the Parlament know the worth of Learning will not bee averse from further overtures, which may bee made towards this purpose. What a great stir hath been heretofore, about the Eminencie of the Librarie of Heidelberg, but what use was made of it ? It was ingrossed into the hands of a few, till it became a Prey unto the Enemies of the Truth. If the Librarie-keeper had been a man, that would have traded with it for the increas of true Learning, it might have been preserved unto this daie in all the rarities thereof, not so much by the shuttings up of the multitude of Books, and the rareness thereof for antiquitie, as by the understandings of men and their proficiencie to improv and dilate knowledge upon the grounds which hee might have suggested unto others of parts, and so the Librarie-rarities would not onely have been preserved in the spirits of men, but have fructified abundantly therein unto this daie, whereas they are now lost, because they were but a Talent digged in the ground

ground ; And as they that had the keeping of that Librarie made it an Idol, to bee respected and worshipped for a raritie by an implicite faith, without anie benefit to those who did esteeme of it a far off: Is it was just with God that it should fall into the hands of those that in all things follow an Idolatrous waie, to blinde men with shewes without all realitie of substantial virtue, which is onely eminent in this, that it becometh profitable unto all, by dilating the light of knowledg, and the love of grace and goodness in the hearts of all men, that are fit to receiv the one and the other ; And where this Aim is not in those that are intrusted with publick places ; there they in the end will bee found unprofitable servants ; for the trust which God hath put into their hands to profit withal, they discharge not for the account which everie one is to give unto him of his Stewardship, is not how careful hee hath kept things of use unto himself, to pride himself in the possession of that which others have not, (as the custom of men is, that know not what true glorie is) but how faithfully and diligently hee hath distributed the same to such as were worthie thereof for their good, that they might bee stirred up both to glorifie God for his goodness ; and to

imitate him in the Communication of all good things unto others for his sake freely. This was Christ's Work on Earth to receive us, unto the Glorie of God; this was that which hee taught by this practice, that it is more blessed to give, then to receive. This is that which this envious World cannot relish, and what stops the current of true love in the hearts of men? Nothing so much as the self-seeking of men in the vvaies of Learning, by which they covetously obstruct the fountains of life and comfort, which might overflow and vwater abundantly the barren and thirstie Souls of those that perish for want of address unto wisdom; which in all the vvaies of humane and divine Learning might bee mainly advanced, by the industrie of one man in such a place, whose Trade should bee such as I formerly described, to deal vvith the spirits of all men of parts, to set them a vvorking one by and towards another, upon the subjects which hee should bee intrusted vvithal to keep in the stock of Learning. It is the Glorie and Riches of Nations and of great Cities, to make themselvs the Center of Trade for all their Neighbors; and if they can finde vvaies of politie, to oblige their Neighbors to receive from their Magazines the Commodities whereof they stand
in

in need, it is everie vvaie a great benefit unto the State, so it may bee in matters of Learning, and by the Trade of Sciences this Church may oblige all the Neighbor Churches, and that Universitie all Forreiners that Trade in knowledg to receive pretious Commodities, whereof they stand in need, from our Magazines and Store-houses; if a painful Steward and dispenser thereof, bee imploied and maintained to use industrie for so blessed a work, from whence much Glorie to God in the Gospel, and honor will redound to the Nation. For although the waies of humane Learning are almost infinite and wonderfully various, and have their peculiar uses in the outward life of man, for which most men affect them, yet in one that is to minde the universal good of all, the whole varietie and diversitie of matters useful unto this present life, as they com within the sphere of Learning must bee reduced, and may bee subordinate unto the advancement of the Gospel of Christ, wherein the Glorie of the Nation, at this and all times should bee thought to stand: And truly that is the thing which take's most with mee, for which I would have that Librarie thus improved by a faithful keeper, that when his Trade is set on foot, with all those that are of eminent

parts in their severall faculties, wee knowing who they are and wherein their eminencies do lie, may have opportunities to provoke them to the right use thereof, by giving them Objects from our store; and furnishing them with tasks and matters to bee elaborated, which cannot bee diverted from the scope of God's glorie to bee made known unto all men in Jesus Christ, for there is nothing of knowledg in the minde of man, which may not bee conveniently referred to the virtues of God in Christ, whereby the humane nature is to bee exalted to that dignitie whereunto hee hath received it, that it should by him rule over the whole Creation. And the want of this Aim to look upon things in order to him, and to set them a working without relation to him, is that which blast's all our endeavors, and make's them determin in confusion and disorder; For whatsoever is not directed in it's own place with som reference unto him must bee overthrown; nor is there anie waie left for anie to prosper in that which hee undertaketh, but to learn to know him and respect him in it, for the advancement of the Kingdom over the Souls of men, which by the Sanctified use of all knowledg is chiefly effected. If then the Trade of Learning is to bee set a foot in a
publick

publick waie, and regulated to deserve the countenance of a Religious State, this Aim, and the waie of prosecuting of it must bee intended and beaten out; For except Sciences bee reformed in order to this Scope, the increas of knowledg will increas nothing but strife, pride and confusion, from whence our sorrows will bee multiplied and propagated unto posteritie; but if hee, who is to bee intrusted with the managing of this Trade, bee addressed in the waie which leadeth unto this Aim without partialitie, his negotiation will bee a blessing unto this age and to posteritie.

I have no time to enlarge upon this Subject, or to conceiv a formal and regular discourf, but the thoughts which thus fall into my minde I impart unto you, that you may give them as hints unto others, who of themselvys will bee able to enlarge them either to the House, or to such as can in due time swaie the Counfells of leading men in this Common-wealth.



A N

Idea of Mathematics

written by Mr *Joh. Pell*to *Samuel Hartlib.*

Sir!

THe sum of what I have heretofore written or spoken to you, concerning the advancement of the *Mathematics*, is this: As long as men want *will*, *wit*, *means* or *leisure* to attend those studies, it is no marvail if they make no great progress in them. To remedie which, I conceiv *these means* not to bee amiss.

I 1. To write a *Consiliarius Mathematicus*, (so I call it) answering to these 3 questions :

Q. 1. What fruit or profit ariseth from the studie of *Mathematics* ?

Q. 2. What helps are there for the attaining this profitable knowledg ?

Q. 3. What order is to bee observed in using these helps ?

To

34 *An Idea of Mathematics.*

To this purpose it should contain

1. A plain and popular *discours* of the extent of the Mathematics, with *the profit* that redound's, first to the *Student* himself, and then to the *Countrie* wherein there are manie such grounded Artists.

2. A *Catalogue* of Mathematicians and their works in this order :

1. A Synopsis of all the several *kinds* of Mathematical writings, either *extant* in print, or *accessible* Manuscripts in publick Libraries, with several numbers set to everie kinde.

2. A Chronical *Catalogue* of all *Mathematician's names* that ever were of note, according to the order of the years *when they lived*, with the year when anie of their works were *first printed*,

3. A *Catalogue* of the *writings themselves*, in the order of years in which they *vvere printed* in anie language : And this I *vwould contrive* thus: First, the year of our *Lord*, and then the names of all the Mathematical Books Printed that year in anie *Coun-*

trie

A

B trie or Language, after the usual manner of Catalogues: but

L

1. *Adding* the volume, that is, not onely what fold [40. 80. &c.] but also the number of leavs, that wee may estimate the bulk of the Book.

2. *Prefixing* before the title the year to vvhich you must look back to know either vvhen it vvas vvritten, or vvhen it vvas last before Printed, in that or any other Language.

3. *Setting* in the margent, after the Title.

1. The year vvherein it vvas the *next time* Printed.

2. The *number of reference* to the *Synopsis* in the first page; By vvhich numbers one may presently run over all the Books of one sort, of this or that particular subject.

3. A *Counsel* directing a student to the *best* Books in everie kinde; In vvhat order, and *how* to read them, What to

B

observ, whatto beware of in som Mathematicasters

36 *An Idea of Mathematics.*

Mathematicasters, how to proceed and keep all.

4. A *Paraphrasis*, First, To all those who have means and leisure, and a wit not unapt for these studies, to set upon them in regard
1. of their *profitableness* to the student, and to mankind. 2. of that more refined pleasure of hunting out hidden truths, vvrastling vwith difficult Problemes, and getting the victorie; and so much the rather, becaus 3. of the great *facilitie* that is nowv in that studie, by reason of the many helps to spare much *labor, time* and *cost*, vvhich our forefathers vvere forced to spend. *Secondly*, To all those who have understanding to estimate the worth of these studies, and *wealth* vvherewith to purchase themselvs lasting honor by the vvise dispensing of it, to take more notice of this sort of students, and to encourage them, setting apart the choicest of them, to perfect the inventions, to vvhich their *Genius* lead's them. Especially, To all *Princes* and *Estates*, vvhom it concern's to take a course, 1. that their dominions may bee better furnished vwith this sort of students. 2. That the vvaie may bee made less laborious and costlie, 3. That *Mathematica ingenia* may bee discovered and assisted.

To

An Idea of Mathematics. 37

To vvhich end it vvould bee good.

2. to erect a *Publick Librarie*, containing all those Books, and one instrument of everie sort that hath been invented, vvith sufficient revenue,

1. To buy one copie of all those that shall bee Printed yearly in other Countries, and

2. To maintain a Librarie-keeper of great judgment, to whom it may belong †

1. To peruse all Books of such subjects, to bee Printed within that Countrie, and 1. Suppress vvhatsoever is not according to Art, that Learners bee not abused, and 2. Admonish the Writers, if they bring nothing but stale stuff.

2. Upon his credit to approv excellent inventions, and unpartially to commend rhe inventors to the rewarders.

3. To receiv, record and place one Printed copie of everie Book so perused, sent into the Librarie, vvell bound at the Autor's or Book-seller's charge.

4. To resolv anie student that enquire's about anie Probleme, vvwhether it have been don already or no, fearing lest hee should *assum agere*, and therefore perhaps suppressing som invention

A vvhich hee hath light upon, but doubts

38 *An Idea of Mathematics.*

A doubts it is old and to bee found in
som of the Books of that Librarie.

- † 5. To receiv, &c. all such Manuscripts
as shall bee brought thither by vvaie
of gift, Legacie or the like.
6. To maintain correspondence vvith
such as himself in other Countries, to
know vvhat is Printed there.
7. To take notice of all his Countremen
that are fit to bee Teachers, &c.
8. To keep a Catalogue of all such
vvorkmen as are able and fit to bee
imploied in making Mathematical
Instruments and representations,
vvorking upon Wood, Magnets, Me-
tals, Glasse, &c.
- 7 9. To give testimonial, after examina-
tion, to all sorts of practisers, as Pi-
lots, Masters, Landmeters, Accom-
prants, &c. of their speculative abili-
tie and practical dexteritie, that those
that have occasion to use such men,
bee not abused by unable underta-
kers, to their exceeding great dam-
age.

By the Catalogue, men might bee
informed, in that multitude of
Books, vvith vvch the vvorld is
novv pestered, vvhat the *names* are
of those Books that tend to this
studie onely. In

An Idea of Mathematics. 39

In the Librarie, they might finde the *Books themselves*, read them, and if they liked them, know vvhither to send to buy them: Besides, anie, vvhether forreiners or others, might have recourse thither, and learn vvhats helps that Countrey would afford them in these studies.

And this is the best course that I can think on for the making use of *such helps as wee have already*. If men desire better helps, let them employe fit Artists.

3 3. To write and publish these *three new Treatises*:†

[1. *Pandectæ Mathematicæ*, Comprehending as Clearly, Orderly, and Thriftily, and Ingenuously as may bee, vvhatsc ever may bee gathered out of all those Mathematical Books and Inventions that vv ere before us, or that may bee inferred as Confectaries thereon; *citing*, at the end of everie period or Proposition, the ancientest Autor in vvhich it is found, and *branding* all later vvriters if they bee taken stealing, or borrovving vvithout acknowledgment, or [vv hich is
A vvorf] expressly arrogating to themselves

40 *An Idea of Mathematics.*

A themselves anie other man's inventions. This vould bring that great *Librarie* into far less room, to the saving of more *labor, time* and *cost*, to all after-students, than men can yet vvell imagine. But becaus this also vould bee too great and cumbersom to carrie about us, Let there bee composed

- 4† 2. *Comes Mathematicus*, Comprehending in a pocket-Book, [and therefore as briefly as may bee] the usefullest Tables and the Precepts for their use, in solving all Problemes, vvwhether purely Mathematical, or applied to such practices as men's various occasions may require.

And lastly, that in this kinde of Learning also, vvee bee no longer tied to Books, Let there bee composed

- 5 3. *Mathematicus autárkus*, or An instruction, shewing hovv anie Mathematician that vvill take the pains, may prepare himself, so, as that hee may, though hee bee utterly destitute of Books or Instruments, resolv anie Mathematical Probleme as exactly as if hee had a complete *Librarie* by him.

And

An Idea of Mathematics. 41

And this is the *Idéa*, vvhich I have long framed to my self, according to my fashion, vvith vvhom this passeth for an undoubted truth, that the surest vvaie to com to all possible excellencie in anie thing, is to propose to our selvs the perfectest *Idéa's* that vvee can imagine, then to seek the means tending thereto, as rationally as may bee, and to prosecute it vvith indefatigable diligence; yet, if the *Idéa* prove too high for us, to rest our selvs content vvith approximation.

As for this present *Idéa*, I am so far from counting it *meerly-impossible*, that I see not vvhy it might not bee performed by one man, vvithout anie assistants, provided that hee vv ere neither *distracted* vvith cares for his maintenance, nor *diverted* by other employments.

The excellencie of this vvork, make's me vvish mine ovvn Nation the honor of *first* undertaking and perfecting this design, And I conceiv I have som reason to hope that it vvill bee so. For, though I know fevv or none that are both able and vvilling to promote designs of this nature, yet can I not therefore bee persvaded

persvaded that this Kingdom is so destitute of learned Nobilitie and Gentry, that there can bee found none to countenance and advance *this* part of Learning, even in *this* vvaie, if they could see it possible and likely to bee effected.

1. 2 As for the *Librarie* and *Catalogue*, there can bee no doubt but they may easily bee had, if Monie bee not vwanting. Nor is it unlikelie that diuers of this Nation (if they be set apart for it) are able to compose the other 3. *new Treatises* ; For though I knowv no such, yet I persvade my self there may bee found amongst us men able to encounter all the difficulties, and to endure all the labor, that they must needs meet vvith in the raising of so great a *Fabrick*. And I the rather believ that there are many such, becauf for mine *own part*, notwithstanding the vvant of Counsel and helps in that studie, and the innumerable diversions and distractions that I have had, I am nevertheless com to such a confidence of my understanding the depth of that studie, that, vvhere I to pen those 3. *Pandeets*, I should laie heavier Lavvs upon

upon my self, than I have already mentioned ; namely , *First* to laie down such an exact *Method* or description of the process of Man's reason in inventions, that *afterward* it should bee imputed meerly to my negligence and disobedience to my own Lawes, [and not to their insufficiencie] if, from my first grounds, seeds, or principles, I did not, in an orderlie vvaie, according to that prescribed *Method*, deduce, not onely all that ever is to bee found in our Antecessor's writings, and vvhatsöever they may seem to have thought on, but also all the Mathematical inventions, Theoremes, Problems and Precepts, that it is possible for the vvorking vvits of our successors to light upon, and that in one certain, unchanged order, from the first seeds of Mathematics, to their highest and noblest applications, as vvell as to the meanest and most ordinarie. Not setting them down at random as they com in my head, as those before us have don, so that they seem to have light upon their Problems and the solutions of them by chance, not to have found them by one perpetual,

petual, constant, invariable process of Art. Yet such an Art may men invent, if they accustom themselves, as I have long don. to consider, not onely the *usefulness* of men's vvorks, and the *meaning* and *truth* of their vvritings, but also *how it came to pass* that they fell upon such thoughts, and that they proposed to themselves such ends, or found out such means for them.

Were these *Pandeſts* thus made and finished, I suppose it is manifest, that by their orderlie, rational and uniform compleatness, above all that hath been hitherto vvritten, they vvould spare after-students much *labor and time* that is novv spent in *seeking* out of Books, and *disorderlie reading* them, and *struggling* vvith their cloudie expressions, unapt representations, different Methods, confusions, tautologies, impertinencies, falsehoods by paralogisms and pseudographemes, uncertainties becauf of insufficient demonstrations, &c. besides much *cost* also, novv throwv a-vvay upon the multitude of Books, the greater part vvhereof they had perhaps been better never to have seen,

And

And it may be som vwould like the Method of that vvork so vvell, as to extend it farther, and applie it to other studies; in speculation imitating this my vvariness, that no falshood bee admitted, and no truth omitted; and for practice ensuring themselves, anie subject being propounded, to determine the number of all the Problemes that can bee conceived concerning it, and anie Probleme being propounded, demonstratively to shew either all the means of it's solution, or the impossibilitie of it: and if so, then vvwhether it bee not yet, or not at all possible.

4. Men vwould easilie see hovv to contract these *Pandeets* into a pocket-Book for their ordinarie use. But so
5. to laie them up in their heads, as to need no Book at all [according to that desideratum of mine, to have a *Mathematicus autopsicus*] vvill perhaps seem utterly impossible to most: No man, that ever I heard of, having proposed such a scope to himself before. But perhaps they vvill conceiv it more possible, if it pleas them to suspend their judgments, till they have considered *what means* may bee used

46. *An Idea of Mathematics.*

to fortifie the imagination, to prompt the memorie, to regulate our reason, and *what effects* may bee produced by the uniting of these means, and the constant exercising of them.

! *For mine own part, the consideration of the incomparable excellencie, unstained pleasure, unvaluable profitableness, and undoubted possibilitie of this vvhole design, hath prevailed so far vvith mee, that, notwithstanding all the discouragements that I have met vvithal, I have don more tovwards it than bare Idea.*

BIBLI-

Qua

**BIBLIOTHECA
AUGUSTA,**

SERENISSIMI, ILLUSTRISSIMI

PRINCIPIS, ac DOMINI,

D. AUGUSTI,

**Ducis Brunovicensis, &
Lunæburgensis.**

Quæ est WOLFERBYTI.

In Bibliothecam Augustam.

Viderat Augustam Dea Castra Bibliothecam,
 Augusti manibus Guelphicâ in Urbe strui:
 Nunc mihi, turriter, quantumvis Mars piter arces
 Objice, quas vehemens Occara cingit, ait.
 Grandia si Libris praefers tormenta, memento
 Illa homines miseros, hanc posuisse Deum.

M. Henricus Julius Scheurl,
 Moralium in Acad. Julia
 Professor publicus.



BIBLIOTHECA AUGUSTA,
 quæ hodie Guelpherbiti, mai-
 quissimâ Ducum Brunovicen-
 sum Sede visitur, sive loquum,
 sive armaria, sive ipsam deni-
 que molem, & congeriem Librorum, sub eo
 nomine intelligas, primum, & unicum, Au-
 torem habet, Serenissimum Illustrissimum
 Principem, ac Dominum, Dominum AU-
 GUSTUM, Ducem Brunovicensem & Lu-
 naburgensem, qui, ut à primis adolescentiæ
 annis, artium eultor solertissimus, & inge-
 niorum censor acutissimus, ità etiam, quod
 istis adhæret, præstantissimorum in omni
 eruditionis genere Librorum amantissi-
 mus.

Exemplum quidem, & ardorem, Illu-
 strissimus Princeps ad istos conatus, à Re-
 gibus & Imperatoribus, qui curam hanc ve-
 rè Regiam sibi propriam esse voluerunt:
 Rem verò nullam ab aliis habuit. Obversa-
 batur nempe animo Osimanduas Aegypti
 Rex, qui ut est apud Diodorum Siculum,
 lib. 1. cap. 49. sacræ Bibliothecæ à se
 erectæ, titulum esse voluit: *Λυχνὸς τὰ λείον*,
 MEDICATORIUM ANIMAE, ut venit L.
Rhodomanus, ejusque ut in Regno, ità & in
 C 3 laudabili

laudabili instituto post aliquot secula Successor Ptolomæus Philadelphus, cujus Bibliotheca, exemplo, imò & Libris summi Aristotelis instructa, omnium Historicorum ore, & laudibus celebris : Eumenes item, seu Attalus, (utrique enim, huic patri, illi filio laudem hanc Historia tribuit) Pergami Reges, quorum tantum in hoc negotio studium, ut cum Ptolomæus chartas seu papyrus, quam sola Ægyptus suppeditaverat, invide supprimeret, veritus, nè Attalus veterem illam Ægypti Bibliothecam novâ suâ æquaret ; ille ferro, quod dicitur, viam sibi aperendam, novâque Librorum conficiendorum rationem inveniendam censeret, optimo sanè successu : membranarum enim ex corio animalium confectarum usum, ut Varro auctor est apud Plinium lib. 13. cap. 11. invenit, cui omne quicquid ad Typographiæ inventionem usque superat Librorum, unice debemus. Unde meritò factum est, ut in æviternam inventoris Pergami Regis memoriam, hujusmodi membranæ adhuc hodie Pergamenæ dicantur.

Nec defuit Principi domesticum Illustrissimorum Antecessorum lineæ Principalis Guelphicæ, Arcis Guelpherbiti Possessorum, exemplum, qui & ipsi superiori seculo instructissimam Bibliothecam, copiatamen Librorum huic Augustæ non comparandam.

dam, paraverant, quam demum Anno æræ
 Dionysianæ 1617. ultimus istius Lineæ
FREDERICUS ULRICUS Academiæ Ju-
 liæ, quæ est Helmæstadii, possidendam, &
 utendam liberaliter contulit. Res, ut pater,
 augurio, & omine felicissimo non carens.
 Ut enim Principi **AUGUSTO** possessio, &
 avita Sedes Ducatûs Guelphici, fatis du-
 dum destinata demonstraretur, idem Geni-
 us, quem in postremis istius Ducatûs Pos-
 sessoribus **HENRICO** Bellicoso, seu Juniore,
JULIO Pacifico, **HENRICO JULIO** sapi-
 entissimo, & **FRIDERICO ULDARICO**
 mitissimo, universus Orbis admirabatur, in
 Principem **AUGUSTUM** eruditissimum,
 transferendus erat, atque ut illustrior esset
 ejus fama, omne quicquid in re Librariâ
 Antecessorum diligentia præstiterat, ad A-
 cademiam Juliam transire, omnis verò laus
 erectæ Bibliothecæ *Augustæ*, soli & unico
 Principi **AUGUSTO** propria esse debebat.

Superâsse autem non immeritò dicendus
 est **AUGUSTUS** in hoc studio, & opere, sive
Ptolomæos, sive *Attalos*, sive **JULIUM**, &
AUGUSTUM, primos Romanorum Impe-
 ratores, (nec horum enim studium in ne-
 gotio librario eruditis ignotum) quòd *Pto-*
lomeus Philadelphus non proprio sive inge-
 nio, sive industriâ, sed alienâ, *Demetrii*
 nempe *Phalerei* viri Atheniensis, scriptis, &

factis illustrissimi, rem confecerit. Cæsar
verò curam hanc, quam magno animo con-
ceperat, & nisi fata intercepissent, absolvis-
set, *Marco Varroni*, Græcorum Latinorumque
doctissimo, quo nullus eâ tempestate in or-
be terrarum isti negotio aptior, dederit.
AUGUSTUS quoque Imperator, nec ipse
quidem, sed per *Asinium Pollionem* (Orato-
rem, & Senatorem Romanum nobilem)
absolvit.

Princeps verò **AUGUSTUS**, & primus au-
tor pulcerrimi sui Operis, & sibi metipso *De-*
metrius, *Varro*, *Pollio*, cuius solius viginti,
& curis nocturnis diurnisque Bibliotheca
AUGUSTA acquisita, & composita est. Ex-
emplo *Pisistrati*, Atheniensium, ut tum vo-
cabantur, Tyranni, qui Bibliothecam Athe-
niensem ad publicum usum, non per alios,
sed ipse componebat, cui & *Homerum* di-
gestum, correctumque debemus: Magnus
profectò vir, modò cognomen illud odio-
sum tollas.

Initium Bibliothecæ Augustæ colligendæ
factum est, Anno æræ Dionysianæ 1604.
ad confluentem *Albis*, & *Jetza*, in Princi-
pis **AUGUSTI** Ducatu *Lunæburgico*, in Au-
lâ, & adjuncto cognomini oppido *Hitz-*
ackerâ, loco quidem ante constitutam ibi-
dem Principis Aulam, satis obscuro, quem
tamen non minùs atque olim *Ulysses Itha-*
cam

am suam satis illustrem reddidit. In hoc recessu satis amœno, inter alia Principis opera magnifica, parvis primùm initiis crevit hæc Bibliotheca, in illam magnitudinem, quæ hodie non sine admiratione cernitur.

Ex hæreditate ullâ nihil erat, quod in tantæ molis auspiciis, aut fundamentum cederet, immensis autem sumptibus conquirebatur, quicquid optimæ notæ Librorum, in quocunque genere eruditionis in Germaniâ, Galliâ, Hispaniâ, Angliâ, Belgio, ipsâ denique Italiâ inveniri poterat.

Quicquid erat doctorum virorum Romæ, Neapoli, Venetiis, Florentiæ (quibus in locis Princeps AUGUSTUS per aliquod annos eruditissimorum virorum familiaritate usus erat) Lutetiæ, Londini, Oxoniæ, ut de Germaniâ nihil addatur, illorum operâ magnis sumptibus ad conquirendos optimæ notæ Libros conducebatur.

Incrementum operi cœpto haud contemnendum dedit Bibliotheca summi viri, & de universâ Germaniâ optimè meriti *Marquardi Freberi*, *Calii* item *Curionis*, ejusdemque filii *Calii Augustini Curionis*, magno Reipubl. literariæ damno, in ipso ætatis flore ante parentem extincti : *Josachini* quoque *Clutenii*, cujus variam eruditionem Sylloge ejus rerum quotidianarum satis demonstrat.

Creuit igitur in magnum, & merito suo
 admirandum numerum, non quorumvis,
 sed optimorum, & selectorum Librorum, ut
 hodie, (21. nempe Maii, Anni 1649.)
 numerentur ἀπλὰ βιβλία, (ut vocat Plu-
 tarchus in M. Antonio) singulares Libri seu
 Volumina, licet in uno Volumine plures saepe
 Libri, sive Tractatus, inveniantur, ferme
 viginti millia.

Voluminum nempe,

Manuscriptorum	764	Muscorum	54
Theologicorum	7287	Arithmeticonum	52
Juridicorum	2578	Ethicorum	778
Physicorum, & quæ ad		Politicorum	682
primam Philosophiam		Historicorum	2133
pertinent	460	Ad res Bellicas pertinen-	
Medicorum	580	tium	142
Mathematicorum in ge-		Oeconomicorum	41
nere, & in specie Geo-		Logicorum	65
metricorum	168	Rhetoricorum	401
Geographicorum	86	Grammaticorum	407
Astronomicorum	197	Poëticorum	746
Variorum, seu ut vulgò vocantur Quodlibetica-			
rum, in quibus nempe, vel diversi Tractatus,			
ad diversas disciplinas pertinentes, conjuncti			
visuntur: vel tales Tractatus in iis deprehen-			
duntur, in quibus varia, modò ad has, modò			
ad alias disciplinas pertinentia explican-			
tur			2092
		Scriptores	

Scriptores verò seu Autores, quorum monu-
menta in prædictis Voluminibus exstant,
numerantur 37077

Traſſatus autem, five diverſorum, five eorundem Autorum, ſupra 60000.

Et nè quis immortalia ipſius Principis AUGUSTI monumenta hic deſideret, viſuntur non tantùm ibidem ea, quæ ab alienâ profecta induſtriâ, vitam ipſi debent, veluti, (ut de multis pauci nominentur) *Antonii Bonſin i ſympſion trimetron* : *Bartholomæi Fontii Commentarius in Perſum*, verùm etiam præclara ejusmetipſius Scripta, eruditorum Orbi ſub nomine GUSTAVI SELENI, olim exhibita : CRYPTOGRAPHIA nempe, quâ (teſte Clariffimo Naudæo in *Bibliographiâ Politicâ*) eruditiffimi *Trithemii Steganographia* hætenus omnibus ſerme eruditis, ipſi etiam FRANCISCO JUNIO magica credita, hujusque judicio, Vulcano conſecrata, ita illuſtrata eſt, ut quicquid in *Trithemio* obſcuro involutumque tamdiu in ſummâ omnium veneratione, & opinione delituerat, omnium oculis patefactum, atque reſectum ſit. Videatur eruditiffimus *Gerhardus Joh. Voſſius*, ipſius Clariffimi *Franciſci Junii* gener, libro de arte *Grammaticâ primo, Cap. 41.* Præter *Trithemii Steganographica* in Opere hoc Cryptographico omnia ea explicantur, & clariffimæ luci exponuntur, quæ, in iſto reconditæ.

recondita scientia & profunda indaginis negotio, humani ingenii vis excogitare potuit.

LUSUS quoque **SCHACHIAE** unà cum **RITHMOMACHIA** seriae & profunda eruditionis Opus. Prodiit uterque Liber, iste quidem Lunaburgi, hic verò Lipsiae in formâ majori, seu folio, ut vocant, elegantissimis typis excusus, & imaginibus exornatus.

HISTORIA item vitae r̃u Salsing Jesu **CHRISTI**, ex quatuor, ut vocantur, Evangelistarum, & reliquis novi Foederis fibris, sermone Principis patrio concinnata & accuratâ pensitatione ita elaborata, ut quicquid hactenus difficultatum, seu *εναρμονοιῶν* omnium eruditorum ingenia mirificè exercuit, id feliciter explicatum, & sacrorum Scriptorum consensus, ut *Augustinus* loquitur, clarissimè demonstratus sit.

Manuscriptorum, ut vocantur, librorum haud contemnendus in hac Bibliothecâ est numerus, & Thesaurus, quorum nonnullos ipse Princeps in Ungariâ, occasione itinerum ad D. D. Imperatores **RUDOLPHUM II.** & **FERDINANDUM II.** in arduis negotiis susceptorum, magno ære redemit, in tenuissimâ magni pretii membranâ elegantissimis litteris scriptos, laciniam illustrissimæ Ebliothecæ, Budæ, Regni Ungariæ Metropoli quondam, à *Matthiâ Hunniade Corvino*,

Carvino, circa An. Christi 1485. erectæ, & Turcarum Tyranno Solimanno, cum Anno ære Dionys. 1541. fraude, & vi Budam caperet, viduamque Joannis Regis Hungariæ Elisabetham, quam cum Regno defendendam se venisse simulaverat, cum filiolo infante ejiceret, erectæ.

Bibliotheca hæc Matthiæ Hunniadis (verba sunt Antonii Bonfinii, rerum Ungaricarum decad. 4. lib. 7. mirâ utriusque linguæ fecunditate fuit completa, cultus autem Librorum luxuriosissimus : cujus posterioris testes locupletissimi sunt hi Manuscripti, quorum occasione hæc adducta sunt.

Nec desunt *Instrumenta Mathematica* exquisitissimè fabrefacta, Sphæræ item & Globi, quibus Sphæræ coelestis fidera & motus, facies item Globi terrestris miro artificio accuratè representantur.

Nequaquam verò numero isto, quem supra posuimus, clauditur hæc Bibliotheca, cum quotidie magnis sumptibus, & indefesso studio accedat, & conquiritur, quicquid melioris notæ Librorum sive noviter, sive denuò editum prodit, aut in omnibus orbis partibus investigari, & redimi potest, adeoq; Bibliotheca hæc AUGUSTA nè vanum sit nominis augurium, singulis diebus augetur.

Primordia, ut supra notatum, in tranquillo Principis AUGUSTI Hitzakerianæ Ithacæ

Ithæa Regno, satis quidem auspiciatò sum-
 fit, parum tamen aberat, quàm Anno Christi
 1638. absente Principe, & Aulam suam
 Brunsvicum, Urbem suam hæreditariam,
 transferente, rapaces manus 78 d. 10. Bel-
 lionæ Filii, à Principe nunquam læsi, exper-
 ta fuisset: qui licet spe & animo eam planè
 devoraverat; vigili tamen Principis curâ &
 itinere properatissimo, unguibus hujus Har-
 piyæ interceptiebatur. Fatum istud olim ex-
 perta erat illustis Atheniensium Bibliothe-
 ca, cùm Xerxes Persarum Monarcha, de-
 victis Atheniensibus, hostibus suis, potissi-
 mam prædæ partem eam faceret, & trans-
 ferret. Restituit tamen eandem trecentos
 triginta post Annos Seleucus Nicanor Sy-
 riæ Rex; qui eam insigniter auctam, magnis
 item muneribus locupleratam, Athenas re-
 mittendam curavit.

Postquam igitur dominium & possessio
 Ducatus Guelphici, Principi AUGUSTO le-
 gitimè delata erat, Arx verò Guelpherby-
 tana, avita & vera Ducum Brunsvicensium
 Sedes, quæ Seculi hujus est injuria, legiti-
 mum suum dominum nondum admitteret,
 transtulit Bibliothecam Princeps Brunsvi-
 cum, Ducatus Guelphici Metropolin, & avi-
 tum Ducum Brunsvicensium dominium, un-
 cum Ducatu, jure hæreditario sibi delatum,
 eique locum concessit satis magnificum, in
 anti-

antiquissimâ Majorum suorum *TANQUAR-*
DI & BRUNONIS, fratrum, Ducum Saxo-
 niæ (cui posteriori, & ortum, & nomen
 Brunsvicum debet) Sede, contiguâ Augu-
 stissimo St. Blasii Templo, condito olim ab
HENRICO LEONE nemini Historicorum
 non celebrato, à quo Princeps *AUGUSTUS*
 rectâ, quod dicitur, lineâ, ortum ducit.

Optimo sanè consilio, quod & olim ve-
 teres Ægypti Reges Bibliothecas suas
 Memphi, celeberrimæ Ægypti Metropoli,
 in Templo Vulcani (cujus magnificentiam
 apud Herodotum videre licet) habitare vo-
 luerint : Ptolomæi item tam prior, quàm
 posterior, à Cleopatrá, Antonii Triumviri
 amoribus famosâ, è ruderibus excitata Bi-
 bliotheca, Alexandriæ apud Serapidis, im-
 mensæ molis & stupendi artificii Templum,
 totius Ægyptiacæ superstitionis arcem, col-
 locata fuerit, teste *Tertulliano*, qui gentiles, ad
 inspiciendum textum Hebræum S. Scriptu-
 ræ, eò advocat & amandat.

Acceptâ tandem XIV. Septembris, Anno
 1643. Arce & Urbe *Wolferbyto*, transiit eo-
 dem unâ cum Principe, Bibliotheca hac
 Augusta., sedemque sortita est è regione
 Aulæ illustrissimæ adeoque reddita est pars
 Regiæ, ut Principi semper in propinquo &
 promptu sint, *immortales illa, eademque san-*
ctissima nunquam non loquentes Anima, ut *Pli-*
nii

nim huiusmodi eruditorum monumenta
scitè vocat lib. 35. Cap. 2. Locns, seu edi-
ficium ubi reposita est, olim loricis, scutis,
hastis, aliisque Bellonæ ornamentis & in-
strumentis asservandis destinatus fuerat,
dignus omninò cui hodie aureis literis tiru-
lus fiat :

— — — *Armamentaria sacræ*

Pallados, & doctis habitata Palatia Musis.

Aditus ejus Augustissimus, solitam Principis
Magnificentiam spirans, ipsum tanrèn sacra-
rium modicè ornatum, quin potius ad ex-
emplum peritorum Architectorum, neque
atreo lacunari comptum, neque pavimen-
tum, neque armaria, seu pegmata, ut Cice-
ro vocat, neque cunei, loculi aut plutei ali-
um quàm viridem colorem referunt : Ful-
gorem enim, sive aureum, sive quemvis alium
oculis officere viridem è contra colorem re-
ficiendis, & recreandis esse oculis, scriptioni,
& lectioni, dudum notatum est naturæ Mystis.

Usus hujus Bibliothecæ quod attinet,
non in spectaculum, aut ornamentum stu-
diosâ quadam luxuriâ, ut olim querebatur
Seneca, conquisitus est hic Thesaurus, nec
ut cum blattis, tineis, fitu, & squalore bel-
lum gerat : Sed ideo pars Regiæ facta est, ut
ipsi Principi in propinquo, & promptu sit
sanctissimarum & sapientissimarum Anima-
rum Senatus frequentissimus, cum quo dis-
serat,

ferat, animum instruat, paret, & ad quas-
cumque Regii officii partes componat. Id
enim exprimit ea, quam aureis Literis in ve-
stibulo Bibliothecæ legi voluit *ὑπομνήματα*, pul-
cerrima sanè, gemmis omnibus & auro con-
trà cærior:

QUANDO OMNES PASSIM LOQUUN-
TUR, ET DELIBERANT, OPTIMUM
A MUTIS ET MORTUIS CONSILI-
UM EST; HOMINES QUOQUE SI
TACEANT, VOCEM INVENIENT
LIBRI, ET QUÆ NEMO DICIT, PRU-
DENS ANTIQUITAS SUGGERIT.

Eadem olim mens *Alphonso Arragoniæ Re-
gi*, cui quotidie in ore, *Mortuos esse optimos
Consiliarios.*

Nec aliud responsum tulit *Zeno Citicæ
Philosophus*, oraculum sciscitans, (verba
sunt *Diogen. Laertii*, lib. 8. de *Vitis Philosopho-
rum*, in princ.) quo pacto optimè vivere pos-
set? nempe: *Ἐὶ οὐχ ὑποκρίσῃ τοῖς νεκροῖς*,
hec est, Si mortuis colore concors fieret, sive, ut
Zeno verè interpretabatur, Si antiquorum
mortuorum familiaritate uteretur, eorūque Li-
bros magnâ attentione & studio, ad pallorem usq;
legeret. In Bibliothecis enim, ut de *Julia*
quondam cecinit *Magnus Calixtus*,

— vitam vivunt, & post sua fata loquuntur
Sæclorumque minas superant, & edacia rerum
Tempora, qui terris caput aliis exeruerunt,

Naturæque

Naturaque super fines, super aethera celsum
 Evexere animum. Sola hæc monumenta super
 sunt,
 Per quæ pugnat adhuc, vincit gentesque triumphat
 Magnus Alexander, quin unquam magnanimorum
 Quicquid in orbe Ducum fuit, ex quo blanda Cu-
 pido
 Laudis, & humanas tentavit gloria mentes.
 Nil vivit vitæque, nisi hic quod creditur omne
 Quod reliquum est, nox alta & longa oblivio opa-
 cant.
 Hic etiamnum Melpomene subnixæ Corborno,
 Lata Sophocleis diducit hiatibus ora,
 Confusosque lares & tristia funera Regum,
 Oedipodæ Thalamos, & sævum plangit Oresten,
 Hic legere est, quæis firmetur Respublica fulcris,
 Et quid Erechthidas olim servarit Athenas,
 Quid pessum dederit: quibus artibus inclita Roma
 Creverit, & populos, magnasque subegerit urbes:
 Quæis etiam vitis sensim labefacta, ruinam
 Traxerit, & lapsu totum tremefecerit Orbem:
 Hic recluduntur naturæ arcana, sinûsque
 Dædalei, & quicquid gremio complectitur, artibus
 Inclusum foris, vigili cognoscere mente
 In promptu est: hic descriptam pietatemve tueri
 Terrarum faciem & vastæ datur Amphitrites,
 Titanisque Globum, Lunæ erroresque, laboresque
 Et picturati fulgentia sidera cæli.
 Quin ipsum ad cælos & splendida panditur astra
 Hic iter, à patribus quondam per saxa, per ignes
 Calcatur

Calcatur, & largo respersum sanguinis imbre.

Et cum ipse Princeps nullum diem prætermittat, per quem cum mutis illis Doctöribus, de difficillimis negotiis, siue sacris, siue civilibus, siue militaribus, non colloquatur, sit, ut ipse sub clavibus quidem suis habeat Bibliothecam, ejusdemque jus & mancipium sibi retineat, usum verò eruditis omnibus, & præsertim ministris suis, quorum ope, seu sacra, seu civilia tractat, secum communem concedat, nec cuiquam alii, nisi qui nummo forsân harpatico hîc aliquid emtum veniat, deneget.

Silentio autem nequaquam prætereundum est, immensam istam Librorum, Autorum & Tractatum molem, ipsum Principem aliquot amplissimis Indicibus in eum ordinem, classes & numeros, suimet industriâ & manu redegisse, ut ad primam cujlibet, siue Autoris, siue Materiæ requisitionem, quocunque in genere disciplinarum, præstò sit, primòque statim momento se tibi sistat & respondeat, quem volueris, aut vocaveris.

Nec ullus est in tanto hoc Autorum, & Librorum agmine, quem non noverit ipse Princeps AUGUSTUS, eâ in re non inferior CYRO, Persarum Monarchæ, qui unumquemque militum in numerosissimo suo exercitu, proprio nomine ad se vocare poterat.

Sufficiant

Sufficiant paucissima hæc, de multis dicta, ceteri stillicidium, ut vetus habet verbum, de stilâ.

Experiatur qui volet, inspiciendi, & penitus perscrutandi copiam nactus, de pretiosissimo hoc divinæ & humanæ sapientiæ Thesauro, idem, quod olim Regina Sabæ de Sapientiâ Solomonis profitebatur, paucissimis tantam immutatis, proferet. 3. Reg. 10. *Non credidi verbis narrantium mihi de rebus & sapientiâ tuâ, usque dum venerim, & viderint oculi mei : Sed ecce non indicatum mihi fuerat ejus dimidium, superas sapientiâ & bonitate famam, quam audiveram.*

Si igitur, teste Julio Capitolino, Gordianum Imperatorem ad cælum tulit, Sammonici Sereni morientis sexaginta duorum millium Librorum relictâ Bibliotheca, siquidem (verba sunt Capitolini) tanta Bibliothecæ copiâ & splendore donatus, in famam hominum literatorum ore pervenit, adeoque alienis planè sumptibus, & diligentia clarus evasit : Si Ptolomæi, Attalus, Cæsar, Augustus sumptibus quidem suis, aut certè manubiis, alienâ tamen diligentia, clarissimi extiterunt : Quid de Principe Augusto fiet, cujus hunc tantum Thesaurum, non alienis sumptibus, non manubiis, non alienæ diligentia, sed propriæ curæ & sollicitudini, in cujus partem neminem hactenus vocavit, propriis item, iisdemque verè
Regiis

Regiis impensis, (quibus alii, five Baccho, five Dianæ, five Mercurio, five aliis voluptatum illecebris litant) debemus ? Ubi verò estis Principes, ut vos urat ac excitet honestus æmulandi ignis ?

Faxit DEUS, ut Thesaurus hic rerum diuinarum, æternarum, sit & ipse æternus, neque priùs, quàm Mundi universa machina, laboret, aut intercidat.

F I N I S.

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